

2053293_1.TXT

SEQUENCE LISTING



<110> Yanagi, Masayuki
Emerson, Suzanne
Bukh, Jens
Purcell, Robert

<120> CLONED GENOME OF INFECTIOUS HEPATITIS C
VIRUSES OF GENOTYPE 2a AND USES THEREOF

<130> NIH255.001NP

<140> US 09/980,559

<141> 2002-05-14

<150> PCT/US00/15446

<151> 2000-06-02

<150> US 60/137,693

<151> 1999-06-04

<160> 70

<170> FastSEQ for windows Version 4.0

<210> 1

<211> 9711

<212> DNA

<213> Hepatitis C virus

<400> 1

```
accgcgccct aataggggag acactccgac atgaatcact cccctgtgag gaactactgt 60
cttcacgcag aaagcgtcta gccatggcgt tagtatgagt gtcgtacagc ctccaggccc 120
ccccctcccg ggagagccat agtgggtctgc ggaaccgggt agtacaccgg aattgcccgg 180
aagactgggt cctttcttgg ataaaccacac tctatgcccg gccatttggg cgtgcccccg 240
caagactgct agccgagtag cgttgggttg cgaaggccct tgtggtactg cctgataggg 300
tgcttgcgag tgccccggga ggtctcgtag accgtgcacc atgagcacia atcctaaacc 360
tcaaagaaaa accaaaagaa acaccaaccg tcgcccacia gacgttaagt ttccgggagg 420
cggccagatc gttggcggag tatacttggt gccgcgcagg ggccccagg tgggtgtgag 480
cgcgacaagg aagacttcgg agcgggtccca gccacgtgga aggcgccagg ccatccctaa 540
agatcggcgc tccactggca aatcctgggg aaaaccagga tacccttggc ccttatacgg 600
gaatgagga ctcggctggg caggatggct cctgtcccc cgagggtccc gtccctcttg 660
gggccccaat gacccccggc ataggtcgcg caacgtgggt aagggtcatg ataccctaac 720
gtgcggcttt gccgacctca tggggtacat ccctgtcgtg ggcgccccgc tcggcggcgt 780
cgccagagct ctgcgcgatg gcgtgagagt cctggaggac ggggttaatt ttgcaacagg 840
gaacttaccg ggttgctcct tttctatctt cttgctggcc ctgctgtcct gcatcaccac 900
cccgtctccc gctgcccgaag tgaagaacat cagtaccggc tacatggtga ctaacgactg 960
caccaatgac agcattacct ggcagctcca ggctgctgtc ctccacgtcc ccgggtgctg 1020
cccgtgcgag aaagtgggga atgcatctca gtgctggata ccggtctcac cgaatgtggc 1080
cgtgcagcgg cccggcgccc tcacgcaggg cttgcggacg cacatcgaca tgggtgtgat 1140
gtccgcccag ctctgctctg ccctctacgt gggggacctc tgcggtgggg tgatgctcgc 1200
agcccaaatg ttcatgtctt cgccgcagca ccactgggtt gtccaagact gcaattgctc 1260
catctacctt ggtaccatca ctggacaccg catggcatgg gacatgatga tgaactggtc 1320
gccacaggct accatgatct tggcgtacgc gatgctgtc cccgagggtc ttatagacat 1380
cattagcggg gctcattggg gcgtcatgtt cggcttggcc tacttctcta tgcagggagc 1440
gtgggcgaaa gtcgttgta tccttctgtt ggccgcccgg gtggacgcgc gcaccatac 1500
tggtgggggt tctgccgcgc agaccaccgg gcgcctcacc agcttatttg acatgggccc 1560
caggcagaaa atccagctcg ttaacaccaa tggcagctgg cacatcaacc gcaccgccct 1620
gaactgcaat gactccttgc acaccggctt tatcgcgtct ctgttctaca cccacagctt 1680
caactcgtca ggatgtcccg aacgcagtgc cgcctgccgc agtatcgagg ccttccgggt 1740
gggatggggc gccttgcaat atgaggataa tgtcaccaat ccagaggata tgagacccta 1800
```

2053293_1.TXT

ttgctggcac	taccaccaa	ggcagtgtgg	cgtggctctcc	gcgaagactg	tgtgtggccc	1860
agtgtactgt	ttcaccccca	gcccagtggt	agtgggcacg	accgacaggc	ttggagcgcc	1920
cacttacacg	tggggggaga	atgagacaga	tgtcttccta	ttgaacagca	ctcgaccacc	1980
gctgggggtca	tggttcggct	gcacgtggat	gaactcttct	ggctacacca	agacttgccg	2040
cgcaccaccc	tgccgtacta	gagctgactt	caacgccagc	acggacctgt	tggtcccccac	2100
ggactgtttt	aggaagcatc	ctgataccac	ttacctcaaa	tgcggctctg	ggccctggct	2160
cacgccaagg	tgccgtatcg	actaccctta	caggctctgg	cattaccctt	gcacagttaa	2220
ctataccatc	ttcaaaataa	ggatgtatgt	gggaggggtt	gagcacaggc	tcacggctgc	2280
atgcaatttc	actcgtgggg	atcgttgcaa	cttgaggagc	agagacagaa	gtcaactgtc	2340
tcctttgttg	cactccacca	cggaaatgggc	cattttacct	tgctcttact	cggacctgcc	2400
cgccttgctg	actggctctt	tccacctcca	ccaaaacatc	gtggacgtac	aattcatgta	2460
tgccctatca	cctgccctca	caaaatacat	cgtccgatgg	gagtgggtaa	tactcttatt	2520
cctgctctta	gcggacgcca	gggtttgcgc	ctgcttatgg	atgctcatct	tgttgggcca	2580
ggccgaagca	gcactagaga	agctgggtcat	cttgacgcgt	gcgagcgag	ctagctgcaa	2640
tggtctccta	tattttgtca	tctttttcgt	ggctgcttgg	tacatcaagg	gtcgggtagt	2700
ccccctagct	acctattccc	tcactggcct	gtggctcctt	agcctactgc	tcctagcatt	2760
gccccaacag	gcttatgctt	atgacgcctc	tgtgcatggc	cagataggag	cggctctgct	2820
ggtaatgatc	actctcttta	ctctcaccct	cgggtataag	acccttctca	gccggttttt	2880
gtgggtgggtg	tgctatcttc	tgaccctggg	ggaagctatg	gtccaggagt	gggcaccacc	2940
tatgcagggtg	cgcggtggcc	gtgatggcat	catatgggcc	gtcgccatat	tctaccagg	3000
tgtgggtgtt	gacataacca	agtggctctt	ggcgggtgctt	gggcctgctt	acctctcaaa	3060
aggtgctttg	acgcgcgtgc	cgtacttcgt	caggcgtcac	gctctactga	ggatgtgcac	3120
catggcaagg	catctcgccg	ggggcaggta	cgtccagatg	gcgctactag	cccttggcag	3180
gtggactggc	acttacatct	atgaccacct	caccctatg	tcggattggg	ctgctagtgg	3240
cctgcgggac	ctggcggtcg	ccgttgagcc	tatcatcttc	agtccgatgg	agaagaaagt	3300
cattgtctgg	ggagcggaga	cagctgcttg	tggggacatt	ttacacggac	ttcccgtgtc	3360
cgcccgaatt	ggtcgggagg	tcctccttgg	ccagctgat	ggctataacct	ccaaggggtg	3420
gagtccttct	gcccccatca	ctgcttacgc	ccagcagaca	cgtggccttt	tgggcaccat	3480
agtggtgagc	atgacggggc	gcgacaagac	agaacaggct	ggggaaattc	aggtcctgtc	3540
cacagtcact	cagtccttcc	tcggaacatc	catctcgggg	gttttgtgga	ctgtctacca	3600
tgagctggc	aacaagactc	tggccggctc	acgggggtccg	gtcacgcaga	tgtactccag	3660
tgctgagggg	gacttagtag	ggtggcccag	ccccctggg	actaaatctt	tggagccgtg	3720
cagtggtgga	gcggctcgacc	tgtacctggt	cacgcggaac	gctgatgtca	tcccggctcg	3780
aagacgcggg	gacaaaacgg	gagcgtact	ctccccgaga	cctctttcca	ccttgaaggg	3840
gtcctcagga	ggcccggtgc	tatgccccag	gggccacgct	gtcggagtct	tccgggcagc	3900
tgtgtgctct	cggggcgtgg	ctaagtccat	agatttcac	cccgttgaga	cactcgacat	3960
cgtcacgcgg	tccccacct	ttagtgacaa	cagcacacca	cctgctgtgc	cccagacct	4020
tcaggtcggg	tacttgcatg	ccccgactgg	cagtggaaag	agcaccaaag	ttcctgtcgc	4080
atatgtgct	cagggtata	aagtgcctag	gcttaatccc	tcagtggctg	ccaccctggg	4140
gtttggggcg	tacttgtcta	aggcacatgg	catcaatccc	aacattagga	ctggagtcat	4200
gactgtgacg	accggggcgc	ccatcacgta	ctccacatat	ggcaaattcc	tcgccgatgg	4260
gggctgtgcg	ggcggcgcct	acgacatcat	catatgtgat	gaatgccatg	ccgtggactc	4320
taccaccatc	cttggcatcg	gaacagctct	tgatcaagca	gagacagctg	gggtcagatg	4380
aactgtgctg	gctacagcta	cgccccctgg	gtcagtgaca	acccccacc	ccaacataga	4440
ggaggtggcc	cttgggcagg	agggcgagat	ccccttctat	gggagggcga	ttcccctgtc	4500
ttacatcaag	ggaggaagac	atctgatctt	ctgccattca	aagaaaaagt	gtgacgagct	4560
cgcggcggcc	cttcggggta	tgggcttgaa	ctcagtggca	tactacagag	ggttggacgt	4620
ctccgtaata	ccaactcagg	gagacgtagt	ggtcgtcgcc	accgacgccc	tcatgacagg	4680
gtatactggg	gactttgact	ccgtgatcga	ctgcaacgta	gcggtcactc	aagtgttga	4740
cttcagttta	gacccccacat	tcaccataac	cacacagatt	gtccctcaag	acgctgtctc	4800
acgtagccag	cgccggggtc	gcacgggtag	gggaagactg	ggcatttata	ggtatgtttc	4860
cactggtgag	cgagcctcag	gaatgtttga	cagtgtagt	ctctgtgagt	gctacgacgc	4920
aggggcccga	tggtatgagc	tcacaccatc	ggagaccacc	gtcaggctca	gggctgtatt	4980
caacacgccc	ggtttgccctg	tgtgccaaga	ccatcttgag	ttttgggagg	cagttttcac	5040
ggccctcaca	cacatagatg	cccacttctt	ttcccaaca	aagcaatcgg	gggaaaattt	5100
cgcatactta	acagcctacc	aggctacagt	gtgcgctagg	gccaaagccc	ccccccgtc	5160
ctgggacgtc	atgtggaagt	gtttgactcg	actcaagccc	acactcgtgg	gccccacacc	5220
tctcctgtac	cgcttgggct	ctgttaccaa	cgaggtcacc	ctcacacatc	ccgtgacgaa	5280
atacatcgcc	acctgcatgc	aagccgacct	tgaggtcatg	accagcacat	gggtcttggc	5340
agggggagtc	ttggcggccg	tcgcccgcga	ttgcttggcg	accgggtgtg	tttgcatcat	5400
cggccgcttg	cacattaacc	agcgaagcgg	ctgtgcgccg	gacaaggagg	tcctctatga	5460
ggcttttgat	gagatggagg	aatgtgcctc	tagggcggt	ctcattgaag	aggggcagcg	5520
gatagccgag	atgctgaagt	ccaagatcca	aggcttattg	cagcaagctt	ccaacaagc	5580

2053293_1.TXT

tcaagacata	caacccactg	tgcaggcttc	atggcccaag	gtagaacaat	tctgggccaa	5640
acacatgtgg	aacttcatta	gcggcatcca	atacctcgca	ggactatcaa	cactgccagg	5700
gaaccctgca	gtagcttcca	tgatggcggt	cagtgcgcgc	ctcaccagtc	cgctgtcaac	5760
aagcaccact	atccttctca	acattttggg	gggctggcta	gcatcccaaa	ttgcaccacc	5820
cgcgggggcc	actggcttcg	ttgtcagttg	cctagtggga	gctgccgtag	gcagtatagg	5880
cttaggtaag	gtgctagtgg	acatcctggc	agggataggt	gcgggcattt	cgggggctct	5940
cgtcgcattc	aagatcatgt	ctggcgagaa	gccctccatg	gaggatgtcg	tcaacttgct	6000
gcctggaatt	ctgtctccgg	gtgccttggt	agtgggagtc	atctgcgcgg	ccattctgcg	6060
ccgacacgtg	ggaccggggg	aaggcgccgt	ccaatggatg	aatagactca	ttgcctttgc	6120
ttccagagga	aatcacgtcg	ccccaccaca	ctacgtgacg	gagtcggatg	cgtcgcagcg	6180
tgtgacccaa	ctacttggtc	cccttaccat	aaccagcctg	ctcagaagac	tccacaactg	6240
gattactgag	gactgcccc	tcccatgcgg	cggctcgtgg	ctccgcgatg	tgtgggactg	6300
ggtttgcacc	atcctaacag	actttaaaaa	ttggctgacc	tccaaattat	tcccaaagat	6360
gcccggcctc	ccctttgtct	cctgtcaaaa	ggggtacaag	ggcgtgtggg	ccggcactgg	6420
catcatgacc	acacggtgtc	cttgccggcg	caatatctct	ggcaatgtcc	gctttgggctc	6480
catgagaatc	acggggcccta	agacctgcac	gaatatctgg	caggggacct	ttcttatcaa	6540
ttgtttacag	gagggccagt	gcgtgccgaa	acccgcgcca	aactttaagg	tcgccatctg	6600
gaggggtggc	gcctcagagt	acgcggaggt	gacgcagcac	gggtcatacc	actacataac	6660
aggactcacc	actgataact	tgaaggtccc	ctgccaacta	ccctctccc	agttcttttc	6720
ctgggtggac	ggagtgcaga	tccataggtt	tgccccaca	ccgaagccgt	ttttccggga	6780
tgaggtctcg	ttctgcgttg	ggcttaattc	atttgtcgtc	gggtcccagc	ttctttgcga	6840
ccctgaaccc	gacacagacg	tattgatgtc	catgtcaaca	gatccatctc	atatcacggc	6900
ggagactgca	gcgcggcggt	tagcgcgggg	gtcaccccca	tccgaggcaa	gctcctcggc	6960
gagccagcta	tcggcaccat	cgctgcgagc	cacctgcacc	accacaggca	aagcctatga	7020
tgtggacatg	gtggatgcta	acctgttcat	ggggggcgat	gtgactcgga	tagagtctgg	7080
gtccaaagtg	gtcgttcttg	actctctcga	cccaatggtc	gaagaaagga	gcgaccttga	7140
gccttcgata	ccatcagaat	acatgtctcc	caagaagagg	ttcccaccag	ctttaccggc	7200
ctgggacacg	cctgattaca	acccaccgct	tgtggaatcg	tggaaaaggc	cagattacca	7260
accggccact	gttgccgggt	gtgctctccc	tcctcttagg	aaaaccccga	cgctctcccc	7320
aaggaggcgc	cggacagtgg	gcctaagtga	ggactccata	ggagatgccc	ttcaacagct	7380
ggccattaag	tcctttggcc	agcccccccc	aagcggcgat	tcaggccttt	ccacgggggc	7440
gggcgctgcc	gattccggca	gtcagacgcc	tcctgatgag	ttggcccttt	cggagacagg	7500
ttccatctct	tacttgcccc	ccctcgaggg	ggagcttgga	gatccagacc	tggagcctga	7560
gcaggtatag	ccccaacccc	ccccccagg	gggggtggca	gctcccggct	cggactcggg	7620
gtcctggtct	acttgctccg	aggaggacga	ctccgtcgtg	tgctgtctca	tgtcatactc	7680
ctggaccggg	gctctaataa	ctccttgtag	tcccgaagag	gagaagttac	cgattaaccc	7740
cttgagcaac	tccctgttgc	gatatacaca	caaggtgtac	tgtaccacaa	caaagagcgc	7800
ctcactaagg	gctaaaaagg	taacttttga	taggatgcaa	gtgctcgact	cctactacga	7860
ctcagcttta	aaggacatta	agctagcgcc	ctccaaggct	accgcaaggc	tcctcaccat	7920
ggaggaggct	tgccagttaa	ccccacccca	ttctgcaaga	tctaaatatg	ggtttggggc	7980
taaggaggct	cgcagcttgt	ccgggagggc	cgtaaacac	atcaagtccg	tgtggaagga	8040
cctcctggag	gactcagaaa	caccaatttc	cacaaccatt	atggccaaaa	atgaggtgtt	8100
ctgctgagac	cccaccaagg	ggggcaagaa	agcagctcgc	cttatcggtt	accctgacct	8160
ggcgctcagg	gtctgcgaga	agatggccct	ttatgacatt	acacaaaaac	ttcctcaggc	8220
gggtatgggg	gcttcttatg	gattccagta	ttccccgct	cagcgggtag	agtttctctt	8280
gaaagcatgg	gcggaaaaga	aggaccctat	gggtttttcg	tatgataccc	gatgctttga	8340
ctcaaccgtc	actgagagag	acatcaggac	tgaggagtcc	atatatcggg	cctgctcctt	8400
gcccaggagg	gcccacactg	ccatacactc	gctaactgag	agactttacg	tgggagggcc	8460
tatgttcaac	agcaagggcc	aaacctgcgg	gtacaggcgt	tgccgcgcca	gcgggggtgt	8520
caccactagc	atggggaaca	ccatcacatg	ctacgtgaaa	gccttagcgg	cttgtaaaagc	8580
tgcagggata	atcgcgcccc	caatgctggt	atgcggcgat	gacttggttg	tcattctcaga	8640
aagccagggg	accgaggagg	acgagcggaa	cctgagagcc	ttcacggagg	ctatgaccag	8700
gtattctgcc	cctcctggtg	acccccccag	accggagtat	gatctggagc	tgataacatc	8760
ttgtctctca	aatgtgtctg	tggcgctggg	cccacaaggc	cgccgcagat	actacctgac	8820
catagacctt	accactccaa	tcgcccgggc	tgccctggaa	acagttagac	actcccctgt	8880
caattcatgg	ctgggaaaca	tcattccagta	gccccgacc	atatgggctc	gcatggtcct	8940
gatgacacac	ttcttctcca	ttctcatggc	tcaagacacg	ctggaccaga	acctcaactt	9000
tgagatgtac	ggagcgggtg	actccgtgag	tcccttggtg	ctcccagcta	taattgaaag	9060
gttacatggg	cttgacgctt	tttctctgca	cacatacact	ccccacgaac	tgacacgggt	9120
ggcttcagcc	ctcagaaaaa	ttggggcgcc	acccctcaga	gcgtggaaga	gcccggcagc	9180
tcagctcagg	gcgtccctca	tctccgctgg	ggggagagcg	gccgttttgc	gtcगतatct	9240
cttcaattgg	gcgggtgaaga	ccaagctcaa	actcactcca	ttgccggaag	cgcgctcctt	9300
ggatttatcc	agctggttca	ccgtcggcgc	cggcgggggc	gacatttatc	acagcgtgtc	9360

2053293_1.TXT

```
gcgtgcccga ccccgcttat tgctctttgg cctactccta cttttttagt gggtaggcct 9420
tttcctactc cccgctcggt agagcggcac acattagcta cactccatag ctaactgtcc 9480
cttttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt 9540
tttttttttt tttttttttt tttttctttt tttctctttt cttctctttt taccttattt 9600
tactttcttt cctgggtggc ccatcttagc cctagtcacg gctagctgtg aaagggtccgt 9660
gagccgcatt actgcagaga gtgccgtaac tggctctctt gcagatcatg t 9711
```

<210> 2
 <211> 3033
 <212> PRT
 <213> Hepatitis C virus

```
<400> 2
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25 30
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
35 40 45
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50 55 60
Ile Pro Lys Asp Arg Arg Ser Thr Gly Lys Ser Trp Gly Lys Pro Gly
65 70 75 80
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Leu Gly Trp Ala Gly Trp
85 90 95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro
100 105 110
Arg His Arg Ser Arg Asn Val Gly Lys Val Ile Asp Thr Leu Thr Cys
115 120 125
Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Val Val Gly Ala Pro Leu
130 135 140
Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145 150 155 160
Gly Val Asn Phe Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
165 170 175
Phe Leu Leu Ala Leu Leu Ser Cys Ile Thr Thr Pro Val Ser Ala Ala
180 185 190
Glu Val Lys Asn Ile Ser Thr Gly Tyr Met Val Thr Asn Asp Cys Thr
195 200 205
Asn Asp Ser Ile Thr Trp Gln Leu Gln Ala Ala Val Leu His Val Pro
210 215 220
Gly Cys Val Pro Cys Glu Lys Val Gly Asn Ala Ser Gln Cys Trp Ile
225 230 235 240
Pro Val Ser Pro Asn Val Ala Val Gln Arg Pro Gly Ala Leu Thr Gln
245 250 255
Gly Leu Arg Thr His Ile Asp Met Val Val Met Ser Ala Thr Leu Cys
260 265 270
Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Gly Val Met Leu Ala Ala
275 280 285
Gln Met Phe Ile Val Ser Pro Gln His His Trp Phe Val Gln Asp Cys
290 295 300
Asn Cys Ser Ile Tyr Pro Gly Thr Ile Thr Gly His Arg Met Ala Trp
305 310 315 320
Asp Met Met Met Asn Trp Ser Pro Thr Ala Thr Met Ile Leu Ala Tyr
325 330 335
Ala Met Arg Val Pro Glu Val Ile Ile Asp Ile Ile Ser Gly Ala His
340 345 350
Trp Gly Val Met Phe Gly Leu Ala Tyr Phe Ser Met Gln Gly Ala Trp
355 360 365
Ala Lys Val Val Val Ile Leu Leu Ala Ala Gly Val Asp Ala Arg
370 375 380
Thr His Thr Val Gly Gly Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr
385 390 395 400
```

2053293_1.TXT

Ser	Leu	Phe	Asp	Met	Gly	Pro	Arg	Gln	Lys	Ile	Gln	Leu	Val	Asn	Thr
				405					410					415	
Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	Ser
			420					425					430		
Leu	His	Thr	Gly	Phe	Ile	Ala	Ser	Leu	Phe	Tyr	Thr	His	Ser	Phe	Asn
		435					440					445			
Ser	Ser	Gly	Cys	Pro	Glu	Arg	Met	Ser	Ala	Cys	Arg	Ser	Ile	Glu	Ala
	450					455					460				
Phe	Arg	Val	Gly	Trp	Gly	Ala	Leu	Gln	Tyr	Glu	Asp	Asn	Val	Thr	Asn
465					470					475					480
Pro	Glu	Asp	Met	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Pro	Pro	Arg	Gln	Cys
				485					490					495	
Gly	Val	Val	Ser	Ala	Lys	Thr	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr
			500					505					510		
Pro	Ser	Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Leu	Gly	Ala	Pro	Thr
		515					520					525			
Tyr	Thr	Trp	Gly	Glu	Asn	Glu	Thr	Asp	Val	Phe	Leu	Leu	Asn	Ser	Thr
	530					535					540				
Arg	Pro	Pro	Leu	Gly	Ser	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Ser
545					550					555					560
Gly	Tyr	Thr	Lys	Thr	Cys	Gly	Ala	Pro	Pro	Cys	Arg	Thr	Arg	Ala	Asp
			565						570					575	
Phe	Asn	Ala	Ser	Thr	Asp	Leu	Leu	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys
			580					585					590		
His	Pro	Asp	Thr	Thr	Tyr	Leu	Lys	Cys	Gly	Ser	Gly	Pro	Trp	Leu	Thr
		595					600					605			
Pro	Arg	Cys	Leu	Ile	Asp	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys
	610					615					620				
Thr	Val	Asn	Tyr	Thr	Ile	Phe	Lys	Ile	Arg	Met	Tyr	Val	Gly	Gly	Val
625					630					635					640
Glu	His	Arg	Leu	Thr	Ala	Ala	Cys	Asn	Phe	Thr	Arg	Gly	Asp	Arg	Cys
				645					650					655	
Asn	Leu	Glu	Asp	Arg	Asp	Arg	Ser	Gln	Leu	Ser	Pro	Leu	Leu	His	Ser
			660					665					670		
Thr	Thr	Glu	Trp	Ala	Ile	Leu	Pro	Cys	Ser	Tyr	Ser	Asp	Leu	Pro	Ala
		675					680					685			
Leu	Ser	Thr	Gly	Leu	Leu	His	Leu	His	Gln	Asn	Ile	Val	Asp	Val	Gln
	690					695					700				
Phe	Met	Tyr	Gly	Leu	Ser	Pro	Ala	Leu	Thr	Lys	Tyr	Ile	Val	Arg	Trp
705					710					715					720
Glu	Trp	Val	Ile	Leu	Leu	Phe	Leu	Leu	Leu	Ala	Asp	Ala	Arg	Val	Cys
				725						730				735	
Ala	Cys	Leu	Trp	Met	Leu	Ile	Leu	Leu	Gly	Gln	Ala	Glu	Ala	Ala	Leu
			740					745					750		
Glu	Lys	Leu	Val	Ile	Leu	His	Ala	Ala	Ser	Ala	Ala	Ser	Cys	Asn	Gly
		755					760					765			
Phe	Leu	Tyr	Phe	Val	Ile	Phe	Phe	Val	Ala	Ala	Trp	Tyr	Ile	Lys	Gly
	770					775					780				
Arg	Val	Val	Pro	Leu	Ala	Thr	Tyr	Ser	Leu	Thr	Gly	Leu	Trp	Ser	Phe
785					790					795					800
Ser	Leu	Leu	Leu	Leu	Ala	Leu	Pro	Gln	Gln	Ala	Tyr	Ala	Tyr	Asp	Ala
				805					810					815	
Ser	Val	His	Gly	Gln	Ile	Gly	Ala	Ala	Leu	Leu	Val	Met	Ile	Thr	Leu
			820						825				830		
Phe	Thr	Leu	Thr	Pro	Gly	Tyr	Lys	Thr	Leu	Leu	Ser	Arg	Phe	Leu	Trp
		835					840					845			
Trp	Leu	Cys	Tyr	Leu	Leu	Thr	Leu	Gly	Glu	Ala	Met	Val	Gln	Glu	Trp
	850					855					860				
Ala	Pro	Pro	Met	Gln	Val	Arg	Gly	Gly	Arg	Asp	Gly	Ile	Ile	Trp	Ala
865					870					875					880
Val	Ala	Ile	Phe	Tyr	Pro	Gly	Val	Val	Phe	Asp	Ile	Thr	Lys	Trp	Leu
				885					890					895	
Leu	Ala	Val	Leu	Gly	Pro	Ala	Tyr	Leu	Leu	Lys	Gly	Ala	Leu	Thr	Arg

2053293_1.TXT

900 905 910
 Val Pro Tyr Phe Val Arg Ala His Ala Leu Leu Arg Met Cys Thr Met
 915 920 925
 Ala Arg His Leu Ala Gly Gly Arg Tyr Val Gln Met Ala Leu Leu Ala
 930 935 940
 Leu Gly Arg Trp Thr Gly Thr Tyr Ile Tyr Asp His Leu Thr Pro Met
 945 950 955 960
 Ser Asp Trp Ala Ala Ser Gly Leu Arg Asp Leu Ala Val Ala Val Glu
 965 970 975
 Pro Ile Ile Phe Ser Pro Met Glu Lys Lys Val Ile Val Trp Gly Ala
 980 985 990
 Glu Thr Ala Ala Cys Gly Asp Ile Leu His Gly Leu Pro Val Ser Ala
 995 1000 1005
 Arg Leu Gly Arg Glu Val Leu Leu Gly Pro Ala Asp Gly Tyr Thr Ser
 1010 1015 1020
 Lys Gly Trp Ser Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr
 1025 1030 1035 1040
 Arg Gly Leu Leu Gly Thr Ile Val Val Ser Met Thr Gly Arg Asp Lys
 1045 1050 1055
 Thr Glu Gln Ala Gly Glu Ile Gln Val Leu Ser Thr Val Thr Gln Ser
 1060 1065 1070
 Phe Leu Gly Thr Ser Ile Ser Gly Val Leu Trp Thr Val Tyr His Gly
 1075 1080 1085
 Ala Gly Asn Lys Thr Leu Ala Gly Ser Arg Gly Pro Val Thr Gln Met
 1090 1095 1100
 Tyr Ser Ser Ala Glu Gly Asp Leu Val Gly Trp Pro Ser Pro Pro Gly
 1105 1110 1115 1120
 Thr Lys Ser Leu Glu Pro Cys Thr Cys Gly Ala Val Asp Leu Tyr Leu
 1125 1130 1135
 Val Thr Arg Asn Ala Asp Val Ile Pro Ala Arg Arg Arg Gly Asp Lys
 1140 1145 1150
 Arg Gly Ala Leu Leu Ser Pro Arg Pro Leu Ser Thr Leu Lys Gly Ser
 1155 1160 1165
 Ser Gly Gly Pro Val Leu Cys Pro Arg Gly His Ala Val Gly Val Phe
 1170 1175 1180
 Arg Ala Ala Val Cys Ser Arg Gly Val Ala Lys Ser Ile Asp Phe Ile
 1185 1190 1195 1200
 Pro Val Glu Thr Leu Asp Ile Val Thr Arg Ser Pro Thr Phe Ser Asp
 1205 1210 1215
 Asn Ser Thr Pro Pro Ala Val Pro Gln Thr Tyr Gln Val Gly Tyr Leu
 1220 1225 1230
 His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Val Ala Tyr
 1235 1240 1245
 Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala
 1250 1255 1260
 Thr Leu Gly Phe Gly Ala Tyr Leu Ser Lys Ala His Gly Ile Asn Pro
 1265 1270 1275 1280
 Asn Ile Arg Thr Gly Val Arg Thr Val Thr Thr Gly Ala Pro Ile Thr
 1285 1290 1295
 Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ala Gly Gly
 1300 1305 1310
 Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ala Val Asp Ser Thr
 1315 1320 1325
 Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly
 1330 1335 1340
 Val Arg Leu Thr Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr
 1345 1350 1355 1360
 Thr Pro His Pro Asn Ile Glu Glu Val Ala Leu Gly Gln Glu Gly Glu
 1365 1370 1375
 Ile Pro Phe Tyr Gly Arg Ala Ile Pro Leu Ser Tyr Ile Lys Gly Gly
 1380 1385 1390
 Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala
 1395 1400 1405

2053293_1.TXT

Ala Ala Leu Arg Gly Met Gly Leu Asn Ser Val Ala Tyr Tyr Arg Gly
1410 1415 1420
Leu Asp Val Ser Val Ile Pro Thr Gln Gly Asp Val Val Val Val Ala
1425 1430 1435 1440
Thr Asp Ala Leu Met Thr Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile
1445 1450 1455
Asp Cys Asn Val Ala Val Thr Gln Val Val Asp Phe Ser Leu Asp Pro
1460 1465 1470
Thr Phe Thr Ile Thr Thr Gln Ile Val Pro Gln Asp Ala Val Ser Arg
1475 1480 1485
Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Leu Gly Ile Tyr Arg
1490 1495 1500
Tyr Val Ser Thr Gly Glu Arg Ala Ser Gly Met Phe Asp Ser Val Val
1505 1510 1515 1520
Leu Cys Glu Cys Tyr Asp Ala Gly Ala Ala Trp Tyr Glu Leu Thr Pro
1525 1530 1535
Ser Glu Thr Thr Val Arg Leu Arg Ala Tyr Phe Asn Thr Pro Gly Leu
1540 1545 1550
Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Ala Val Phe Thr Gly
1555 1560 1565
Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly
1570 1575 1580
Glu Asn Phe Ala Tyr Leu Thr Ala Tyr Gln Ala Thr Val Cys Ala Arg
1585 1590 1595 1600
Ala Lys Ala Pro Pro Pro Ser Trp Asp Val Met Trp Lys Cys Leu Thr
1605 1610 1615
Arg Leu Lys Pro Thr Leu Val Gly Pro Thr Pro Leu Leu Tyr Arg Leu
1620 1625 1630
Gly Ser Val Thr Asn Glu Val Thr Leu Thr His Pro Val Thr Lys Tyr
1635 1640 1645
Ile Ala Thr Cys Met Gln Ala Asp Leu Glu Val Met Thr Ser Thr Trp
1650 1655 1660
Val Leu Ala Gly Gly Val Leu Ala Ala Val Ala Ala Tyr Cys Leu Ala
1665 1670 1675 1680
Thr Gly Cys Val Cys Ile Ile Gly Arg Leu His Ile Asn Gln Arg Ala
1685 1690 1695
Val Val Ala Pro Asp Lys Glu Val Leu Tyr Glu Ala Phe Asp Glu Met
1700 1705 1710
Glu Glu Cys Ala Ser Arg Ala Ala Leu Ile Glu Glu Gly Gln Arg Ile
1715 1720 1725
Ala Glu Met Leu Lys Ser Lys Ile Gln Gly Leu Leu Gln Gln Ala Ser
1730 1735 1740
Lys Gln Ala Gln Asp Ile Gln Pro Thr Val Gln Ala Ser Trp Pro Lys
1745 1750 1755 1760
Val Glu Gln Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile
1765 1770 1775
Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Val Ala
1780 1785 1790
Ser Met Met Ala Phe Ser Ala Ala Leu Thr Ser Pro Leu Ser Thr Ser
1795 1800 1805
Thr Thr Ile Leu Leu Asn Ile Leu Gly Gly Trp Leu Ala Ser Gln Ile
1810 1815 1820
Ala Pro Pro Ala Gly Ala Thr Gly Phe Val Val Ser Gly Leu Val Gly
1825 1830 1835 1840
Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val Asp Ile Leu
1845 1850 1855
Ala Gly Tyr Gly Ala Gly Ile Ser Gly Ala Leu Val Ala Phe Lys Ile
1860 1865 1870
Met Ser Gly Glu Lys Pro Ser Met Glu Asp Val Val Asn Leu Leu Pro
1875 1880 1885
Gly Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Ile Cys Ala Ala
1890 1895 1900
Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met

2053293_1.TXT

Gly Gly Val Ala Ala Pro Gly Ser Asp Ser Gly Ser Trp Ser Thr Cys
2420 2425 2430
Ser Glu Glu Asp Asp Ser Val Val Cys Cys Ser Met Ser Tyr Ser Trp
2435 2440 2445
Thr Gly Ala Leu Ile Thr Pro Cys Ser Pro Glu Glu Glu Lys Leu Pro
2450 2455 2460
Ile Asn Pro Leu Ser Asn Ser Leu Leu Arg Tyr His Asn Lys Val Tyr
2465 2470 2475 2480
Cys Thr Thr Thr Lys Ser Ala Ser Leu Arg Ala Lys Lys Val Thr Phe
2485 2490 2495
Asp Arg Met Gln Val Leu Asp Ser Tyr Tyr Asp Ser Val Leu Lys Asp
2500 2505 2510
Ile Lys Leu Ala Ala Ser Lys Val Thr Ala Arg Leu Leu Thr Met Glu
2515 2520 2525
Glu Ala Cys Gln Leu Thr Pro His Ser Ala Arg Ser Lys Tyr Gly
2530 2535 2540
Phe Gly Ala Lys Glu Val Arg Ser Leu Ser Gly Arg Ala Val Asn His
2545 2550 2555 2560
Ile Lys Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Glu Thr Pro Ile
2565 2570 2575
Pro Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Asp Pro Thr
2580 2585 2590
Lys Gly Gly Lys Lys Ala Ala Arg Leu Ile Val Tyr Pro Asp Leu Gly
2595 2600 2605
Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Ile Thr Gln Lys Leu
2610 2615 2620
Pro Gln Ala Val Met Gly Ala Ser Tyr Gly Phe Gln Tyr Ser Pro Ala
2625 2630 2635 2640
Gln Arg Val Glu Phe Leu Leu Lys Ala Trp Ala Glu Lys Lys Asp Pro
2645 2650 2655
Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu
2660 2665 2670
Arg Asp Ile Arg Thr Glu Glu Ser Ile Tyr Arg Ala Cys Ser Leu Pro
2675 2680 2685
Glu Glu Ala His Thr Ala Ile His Ser Leu Thr Glu Arg Leu Tyr Val
2690 2695 2700
Gly Gly Pro Met Phe Asn Ser Lys Gly Gln Thr Cys Gly Tyr Arg Arg
2705 2710 2715 2720
Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Met Gly Asn Thr Ile Thr
2725 2730 2735
Cys Tyr Val Lys Ala Leu Ala Ala Cys Lys Ala Ala Gly Ile Ile Ala
2740 2745 2750
Pro Thr Met Leu Val Cys Gly Asp Leu Val Val Ile Ser Glu Ser
2755 2760 2765
Gln Gly Thr Glu Glu Asp Glu Arg Asn Leu Arg Ala Phe Thr Glu Ala
2770 2775 2780
Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Arg Pro Glu Tyr
2785 2790 2795 2800
Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala Leu
2805 2810 2815
Gly Pro Gln Gly Arg Arg Arg Tyr Tyr Leu Thr Arg Asp Pro Thr Thr
2820 2825 2830
Pro Ile Ala Arg Ala Ala Trp Glu Thr Val Arg His Ser Pro Val Asn
2835 2840 2845
Ser Trp Leu Gly Asn Ile Ile Gln Tyr Ala Pro Thr Ile Trp Ala Arg
2850 2855 2860
Met Val Leu Met Thr His Phe Phe Ser Ile Leu Met Ala Gln Asp Thr
2865 2870 2875 2880
Leu Asp Gln Asn Leu Asn Phe Glu Met Tyr Gly Ala Val Tyr Ser Val
2885 2890 2895
Ser Pro Leu Asp Leu Pro Ala Ile Ile Glu Arg Leu His Gly Leu Asp
2900 2905 2910
Ala Phe Ser Leu His Thr Tyr Thr Pro His Glu Leu Thr Arg Val Ala

2053293_1.TXT

2915 2920 2925
 Ser Ala Leu Arg Lys Leu Gly Ala Pro Pro Leu Arg Ala Trp Lys Ser
 2930 2935 2940
 Arg Ala Arg Ala Val Arg Ala Ser Leu Ile Ser Arg Gly Gly Arg Ala
 2945 2950 2955 2960
 Ala Val Cys Gly Arg Tyr Leu Phe Asn Trp Ala Val Lys Thr Lys Leu
 2965 2970 2975
 Lys Leu Thr Pro Leu Pro Glu Ala Arg Leu Leu Asp Leu Ser Ser Trp
 2980 2985 2990
 Phe Thr Val Gly Ala Gly Gly Gly Asp Ile Tyr His Ser Val Ser Arg
 2995 3000 3005
 Ala Arg Pro Arg Leu Leu Leu Phe Gly Leu Leu Leu Leu Phe Val Gly
 3010 3015 3020
 Val Gly Leu Phe Leu Leu Pro Ala Arg
 3025 3030

<210> 3
 <211> 9611
 <212> DNA
 <213> Hepatitis C virus

<400> 3
 gccagccccc tgatgggggc gacactccac catgaatcac tcccctgtga ggaactactg 60
 tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgctcgtgcag cctccaggac 120
 cccccctccc gggagagcca tagtgggtctg cggaaaccggt gagtacaccg gaattgccag 180
 gacgaccggg tcctttcttg gataaaccgc ctcaatgcct ggagatttgg gcgtgcccc 240
 gcaagactgc tagccgagta gtgttggtgc gcgaaaggcc ttgtggtact gcctgatagg 300
 gtgcttgcca gtgccccggg aggtctcgta gaccgtgcac catgagcaca aatcctaacc 360
 ctcaaagaaa aacaaaaaga aacaccaacc gtcgcccaca agacgttaag tttccgggcg 420
 gcggccagat cgttggcgga gtatacttgt tgccgcgcag gggccccagg ttgggtgtgc 480
 gcgcgacaag gaagacttcg gagcgggtccc agccacgtgg aaggcgccag cccatcccta 540
 aagatcggcg ctccactggc aaatcctggg gaaaaccagg ataccctgg cccctatacg 600
 ggaatgaggg actcggctgg gcaggatggc tcctgtcccc ccgaggttcc cgtccctctt 660
 ggggccccaa tgacccccgg cataggtcgc gcaacgtggg taaggtcatc gataccctaa 720
 cgtgcggctt tgccgacctc atgggggtaca tccctgtcgt gggcgccccg ctcggcggcg 780
 tcgccagagc tctcgcgcac ggcgtgagag tcctggagga cgggggttaat ttgtcaacag 840
 ggaacttacc cggttgctcc ttttctatct cctgctgtgc cctcatcaca 900
 ccccggtctc cgctgccgaa gtgaagaaca tcagtaccgg ctacatggtg actaacgact 960
 gcaccaatga cagcattacc tggcagctcc aggtgtgtgt cctccacgtc cccgggtgcg 1020
 tcccgtgcga gaaagtgggg aatgcattct agtgctggat accggtctca ccgaatgtgg 1080
 ccgtgcagcg gcccgcgccc ctacgcagag gcttgccggc gcacatcgac atggttgtga 1140
 tgtccgccac gctctgtctt gccctctacg tgggggacct ctgcgggtgg gtgatgtctg 1200
 cagcccaaat gttcattgtc tcgcccagcg accactggtt tgtccaagac tgcaattgtc 1260
 ccatttaccg tgggtaccatc actggacacc gcatggcatg ggacatgatg atgaactggt 1320
 cgcccacggc taccatgatc ttggcgtagc cgatgcgtgt ccccgaggtc attatagaca 1380
 tcattagcgg ggtcatttgg ggcgtcatgt tcggcttggc ctacttctct atgcaggagg 1440
 cgtgggcgaa agtcgttgtc atccttctgt tggccgcccg ggtggacgcg cgcacccata 1500
 ctgttggggg ttctgcccgc cagaccaccg ggcgcctcac cagcttattt gacatgggcc 1560
 ccaggcagaa aatccagctc gttaacacca atggcagctg gcacatcaac cgcaccgccc 1620
 tgaactgcaa tgactccttg cacaccggct ttatcgctc tctgttctac acccacagct 1680
 tcaactcgtc aggatgtccc gaacgcatgt ccgcctgccg cagtatcgag gccttccggg 1740
 tgggatgggg cgccttgcaa tatgaggata atgtcaccaa tccagaggat atgagaccct 1800
 attgttgcca ctaccacca aggcagtgtg gcgtggtctc cgcgaagact gtgtgtggcc 1860
 cagtgtactg tttaccccc agcccagtgg tagtgggcac gaccgacagg cttggagcgc 1920
 ccacttacac gtggggggag aatgagacag atgtcttctt attgaacagc actcgaccac 1980
 cgctgggggtc atggttcggc tgcacgtgga tgaactctt tggctacacc aagacttgcg 2040
 gcgcaccacc ctgccgtact agagctgact tcaacgccag cacggacctg ttgtgcccc 2100
 cggactgttt taggaagcat cctgatacca cttacctcaa atgcggctct gggccctggc 2160
 tcacgccaaag gttcctgatc gactaccctg acaggctctg gcattacccc tgcacagtta 2220
 actataccat cttcaaaata aggatgtatg tgggaggggt tgagcacagg ctacaggctg 2280
 catgcaattt cactcgtggg gatcgttgca acttggagga cagagacaga agtcaactgt 2340
 ctcttttgtt gcactccacc acggaatggg ccattttacc ttgctcttac tcggacctgc 2400

2053293_1.TXT

ccgccttgctc	gactgggtctt	ctccacctcc	acaaaaacat	cgtggacgta	caattcatgt	2460
atggcctatc	acctgccctc	acaaaataca	tcgtccgatg	ggagtgggta	atactcttat	2520
tcctgctctt	agcggacgcc	agggtttgcg	cctgcttatg	gatgctcatc	ttgttgggcc	2580
aggccgaagc	agcactagag	aagctgggtca	tcttgacgcg	tgcgagcgca	gctagctgca	2640
atggcttcct	atattttgtc	atctttttcg	tggctgcttg	gtacatcaag	ggtcgggtag	2700
tcccttagc	tacctattcc	ctcactggcc	tgtggtcctt	tagcctactg	ctcctagcat	2760
tgccccaaca	ggcatatgca	ctggacacgg	aggtggccgc	gtcgtgtggc	ggcgttgttc	2820
ttgtcgggtt	aatggcgctg	actctgtcgc	catattacaa	gcgctatatc	agctggtgca	2880
tgtggtggct	tcagtatttt	ctgaccagag	tagaagcgca	actgcacgtg	tgggttcccc	2940
ccctcaacgt	ccgggggggg	cgcgatgccg	tcactcttact	catgtgtgta	gtacaccgca	3000
ccctgggtatt	tgacatcacc	aaactactcc	tggccatctt	cggacccctt	tggattcttc	3060
aagccagttt	gcttaaagtc	ccctacttctg	tgcgcgttca	aggccttctc	cggatctgcg	3120
cgctagcgcg	gaagatagcc	ggaggtcatt	acgtgcaaatt	ggccatcatc	aagttagggg	3180
cgcttactgg	cacctatgtg	tataaccatc	tcacccctct	tcgagactgg	gcgcacaacg	3240
gcctgcgaga	tctggccgtg	gctgtggaac	cagtcgtctt	ctcccgaatg	gagaccaagc	3300
tcctcacgtg	gggggagag	accgcccgtg	cggtgtgacat	catcaacggc	ttgcccgtct	3360
ctgcccgtag	gggcccaggag	atactgcttg	ggccagccga	cggaatgggtc	tccaaggggt	3420
ggaggttgct	ggcgcccatc	acggcgtagc	cccagcagac	gagaggcctc	ctaggggtga	3480
taatcaccag	cctgactggc	cgggacaaaa	accaagtggg	gggtgaggtc	cagatcgtgt	3540
caactgctac	ccaaaccttc	ctggcaacgt	gcataaatgg	gggtatgctg	actgtctacc	3600
acggggccgg	aacgaggacc	atcgcatcac	ccaaggttcc	tgtcatccag	atgtatacca	3660
atgtggacca	agaccttgtg	ggctggcccg	ctcctcaagg	ttcccgtctc	ttgacaccct	3720
gtacctcgcg	ctcctcgga	ctttacctgg	tcacgaggca	cgccgatgtc	attcccgtgc	3780
gccggcgagg	tgatagcagg	ggtagcctgc	tttcgccccg	gcccatttcc	tacttgaaag	3840
gctcctcggg	gggtccgctg	ttgtgccccg	cgggacacgc	cgtgggccta	ttcagggccg	3900
cggtgtgcac	ccgtggagtg	gctaaagcgg	tggactttat	ccctgtggag	aacctagggg	3960
caaccttagc	atccccgggtg	ttcacggaca	actcctctcc	accagcagtg	ccccagagct	4020
tcaggtggc	ccacctgcat	gctcccaccg	gcagcggtaa	gagcaccaag	gtcccggctg	4080
cgtacgcagc	ccagggctac	aaggtgttgg	tgctcaaccc	ctctgttgct	gcaacgctgg	4140
gctttggtgc	ttacatgtcc	aaggcccatg	gggttgatcc	taatatacag	accgggggtga	4200
gaacaattac	cactggcagc	cccatacagt	actccacctc	cggcaagtct	cttgccgacg	4260
gcgggtgctc	aggaggtgct	tatgacataa	taatttgtga	cgagtgccac	tccacggatg	4320
ccacatccat	cctgggcatac	ggcactgtcc	ttgaccaagc	agagactgcg	ggggcgagac	4380
tggttgtgct	cgccactgct	acccctccgg	gctccgtcac	tgtgtcccat	cctaacatcg	4440
aggaggttgc	tctgtccacc	accggagaga	tcccccttta	cggcaaggct	atccccctcg	4500
aggtgatcaa	ggggggaaga	catctcatct	tctgccactc	aaagaagaag	tgcgacgagc	4560
tcgccgcgaa	gctgggtcgca	ttgggcatca	atgccgtggc	ctactaccgc	ggtcttgacg	4620
tgtctgtcat	cccgaccagc	ggcgtatgtg	tgtcgtgtc	gaccgatgct	ctcactgacg	4680
gctttaccgg	cgacttcgac	tctgtgatag	actgcaacac	gtgtgtcact	cagacagtgc	4740
atttcagcct	tgaccctacc	tttaccattg	agacaaccac	gctccccag	gatgtgtct	4800
ccaggactca	acgccggggc	aggactggca	gggggaagcc	aggcatctat	agatttgtgg	4860
caccggggga	gcgccccctc	ggcatgttgc	actcgtccgt	cctctgtgag	tgctatgacg	4920
gggctgtgct	ttggtatgag	ctcacgcccc	ccgagactac	agttaggcta	cgagcgta	4980
tgaacacccc	ggggcttccc	gtgtgccagg	accacttga	attttgggag	ggcgtcttta	5040
cgggcctcac	tcatatagat	gccacttttt	tatcccagac	aaagcagagt	ggggagaact	5100
ttccttacct	ggtagcgtac	caagccaccg	tgtgcgctag	ggctcaagcc	cctcccccat	5160
cgtgggacca	gatgtggaag	tgtttgatcc	gccttaaac	caccctccat	gggccaacac	5220
ccctgtata	cagactgggc	gctgttcaga	atgaagtcac	cctgacgcac	ccaatcacca	5280
aatacatcat	gacatgcatg	tcggccgacc	tggaggtcgt	cacgagcacc	tgggtgctcg	5340
ttggcgcgct	cctggctgct	ctggccgctg	attgcctgtc	aacaggctgc	gtggtcatag	5400
tgggcaggat	cgtcttgtcc	gggaagccgg	caattatacc	tgacagggag	gttctctacc	5460
aggagttcga	tgagatggaa	gagtgtcttc	agcacttacc	gtacatcgag	caagggatga	5520
tgctcgctga	gcagttcaag	cagaaggccc	tcggcctcct	gcagaccgcg	tcccggcatg	5580
cacaggttat	cacccctgct	gtccagacca	actggcagaa	actcgaggtc	ttttgggcga	5640
agcacatgtg	gaatttcatac	agtgggatac	aatacttggc	gggcctgtca	acgctgcctg	5700
gtaacccgc	cattgcttca	ttgatggctt	ttacagctgc	cgtcaccagc	ccactaacca	5760
ctggccaaac	cctcctcttc	aacataattg	gggggtgggt	ggctgccag	ctcgccgccc	5820
ccggtgccgc	tactgccttt	gtgggtgctg	gcctagctgg	cggcccatc	ggcagcgttg	5880
gactggggaa	ggtcctcgtg	gacattcttg	cagggtatgg	cgcgggcgtg	gcgggagctc	5940
ttgtagcatt	aagatcatg	agcggtgagg	tccccccac	ggaggacctg	gtcaatctgc	6000
tgcccccat	cctctcgctc	ggagcccttg	tagtcggtgt	ggctctgcga	gcaatactgc	6060
gccggcacgt	tggcccgggc	gagggggcag	tgcaatggat	gaaccggcta	atagccttcg	6120
cctccccggg	gaaccatggt	tccccacgc	actacgtgcc	ggagagcgat	gcagccgccc	6180

2053293_1.TXT

```

gcgtcactgc catactcagc agcctcactg taaccagct cctgaggcga ctgcatcagt 6240
ggataagctc ggagtgtacc actccatgct ccggttcctg gctaaggagac atctgggact 6300
ggatatgcga ggtgctgagc gactttaaga cctggctgaa agccaagctc atgccacaac 6360
tgccctgggat tccctttgtg tcctgccagc gcgggtatag gggggtctgg cgaggagacg 6420
gcattatgca cactcgctgc cactgtggag ctgagatcac tggacatgtc aaaaacggga 6480
cgatgaggat cgtcggtcct aggacctgca ggaacatgtg gagtgggacg tccccatta 6540
acgcctacac cacgggcccc tgtactcccc ttctgcgcc gaactataag ttcgctgt 6600
ggagggtgtc tgcagaggaa tacgtggaga taaggcgggt gggggacttc cactacgtat 6660
cgggtatgac tactgacaat cttaaagtgc cgtgccagat cccatcgccc gaatttttca 6720
cagaattgga cggggtgcgc ctacacaggt ttgcccctc ttgcaagccc ttgctgcggg 6780
aggaggtatc attcagagta ggactccacg agtaccgggt ggggtcgcaa ttaccttgcg 6840
agcccgaacc ggacgtagcc gtgttgacgt ccatgtcac tgatccctcc catataacag 6900
cagaggcggc cgggagaagg ttggcgagag ggtcaccctc ttctatggcc agctcctcgg 6960
ctagccagct gtccgctcca tctctcaagg caacttgac cgccaacat gactccccctg 7020
acgccgagct catagaggct aacctcctgt ggaggcagga gatgggcggc aacatcacca 7080
gggttgagct agagaacaaa gtggtgattc tggactcctt cgatccgctt gtggcagagg 7140
aggatgagcg ggaggctctc gtacctgcag aaattctcgg gaagtctcgg agattcgccc 7200
gggccctgcc cgtctgggcg cggccggact acaaccccc gctagtagag acgtgaaaaa 7260
agcctgacta cgaaccacct gtggtccatg gctgcccgt accacctcca cggtccccctc 7320
ctgtgcctcc gcctcgaaa aagcgtacgg tggctctcac cgaatcaacc ctatctactg 7380
ccttgccga gcttgccacc aaaagttttg gcagctcctc aacttcgggc attacgggcg 7440
acaatcgac aacatcctct gagcccgccc cttctggctg ccccccgac tccgacgttg 7500
agtcctattc ttccatgccc cccctggagg gggagcctgg ggatccggat ctacgcgacg 7560
ggtcatggtc gacggctcagt agtggggcgg acacggaaga tgtcgtgtgc tgctcaatgt 7620
cttattcctg gacaggcgca ctcgctaccc cgtgcgtgc ggaagaacaa aaactgcca 7680
tcaacgcact gagcaactcg ttgctacgcc atcacaatct ggtgtattcc accacttcac 7740
gcagtgcctg ccaaaggcag aagaaagtca ctttgacag actgcaagtt ctggacagcc 7800
attaccagga cgtgctcaag gaggtcaaag cagcggcgtc aaaagtgaag gctaacttgc 7860
tatccgtaga ggaagcttgc agcctgacgc cccacattc agccaaatcc aagtttggct 7920
atggggcaaa agacgtccgt tgccatgcc gaaaggcgt agcccacatc aactccgtgt 7980
ggaaagacct tctggaagac agtghtaacac caatagacac taccatcatg gccagaacg 8040
aggttttctg cgttcagcct gagaaggggg gtcgtaagcc agctcgtctc atcgtgttcc 8100
ccgacctggg gtcgagcgta tgcgagaaga tggccctgta cgacgtgggt agcagactcc 8160
ccctggccgt gatgggaagc tcctacggat tccaatactc accaggacag cgggttgaat 8220
tcctcgtgca agcgtggaag tccaagaaga ccccgatggg gttctcgtat gatacccgct 8280
gttttgactc cacagtcact gagagcgaca tccgtacgga ggaggcaatt taccaatgtt 8340
gtgacctgga cccccaagcc cgcgtggcca tcaagtccct cactgagagg ctttatgttg 8400
ggggccctct taccattca aggggggaaa actcggtgta ccgcaggtgc cgcgagcct 8460
gcgtactgac aactagctgt ggtaacaccc tcatttgcta catcaaggcc cgggcagcct 8520
gtcgagccgc agggctccag gactgcacca tgctcgtgtg tggcgacgac ttagtcgtta 8580
tctgtgaaag tgcgggggtc caggaggacg cggcgagcct gagagccttc acggaggcta 8640
tgaccaggta ctccgcccc cccggggacc cccacaacc agaatacgac ttggagctta 8700
taacatcatg tccctccaac gtgtcagtcg cccacgacgg cgctggaaag agggcttact 8760
accttaccg gcacctaca accccctcg cgagagccgc gtgggagaca gcaagacaca 8820
ctccagtc aa ttcttggtta ggcaacataa tcatgtttgc ccccaactg tggcgagga 8880
tgatactgat gacccatttc tttagcgtcc tcatagccag ggatcagctt gaacaggctc 8940
ttaactgtga gatctacgga gcctgtact ccatagaacc actggatcta cctccaatca 9000
ttcaaagact ccatggcctc agcgcatttt cactccacag ttactctcca ggtgaaatca 9060
atagggtggc cgatgcctc agaaaacttg ggtcccgc cttgcgagct tggagacacc 9120
gggcccggag cgtccgctc aggttctgt ccagaggagg cagggtgct atatgtggca 9180
agtacctctt caactgggca gtaagaacaa agctcaaact cactccaata gcgccgctg 9240
gccggctgga cttgtccggg ttggttacgg ctggctacag cgggggagac atttatcaca 9300
gcgtgtctca tgcccggccc cgctggttct ggttttgcct actcctgctc gctgcagggg 9360
taggcactca cctcctcccc aaccgatgaa ggttggggt aacactccgg cctcttaagc 9420
catttcctgt ttttttttt ttttttttt aatggtggct ccttctttcc 9480
ttcttttttt cttttcttt tcccttcttt atggtggct cctagtcacg 9540
gctagctgtg aaaggtccgt gagccgcatg actgcagaga gtgctgatac tggcctctct 9600
gcagatcatg t 9611

```

<210> 4
 <211> 3015
 <212> PRT
 <213> Hepatitis C virus

2053293_1.TXT

<400> 4
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 1 5 10 15
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gln Ile Val Gly
20 25 30
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
35 40 45
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50 55 60
Ile Pro Lys Asp Arg Arg Ser Thr Gly Lys Ser Trp Gly Lys Pro Gly
65 70 75 80
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Leu Gly Trp Ala Gly Trp
85 90 95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro
100 105 110
Arg His Arg Ser Arg Asn Val Gly Lys Val Ile Asp Thr Leu Thr Cys
115 120 125
Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Val Val Gly Ala Pro Leu
130 135 140
Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145 150 155 160
Gly Val Asn Phe Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
165 170 175
Phe Leu Leu Ala Leu Leu Ser Cys Ile Thr Thr Pro Val Ser Ala Ala
180 185 190
Glu Val Lys Asn Ile Ser Thr Gly Tyr Met Val Thr Asn Asp Cys Thr
195 200 205
Asn Asp Ser Ile Thr Trp Gln Leu Gln Ala Ala Val Leu His Val Pro
210 215 220
Gly Cys Val Pro Cys Glu Lys Val Gly Asn Ala Ser Gln Cys Trp Ile
225 230 235 240
Pro Val Ser Pro Asn Val Ala Val Gln Arg Pro Gly Ala Leu Thr Gln
245 250 255
Gly Leu Arg Thr His Ile Asp Met Val Val Met Ser Ala Thr Leu Cys
260 265 270
Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Gly Val Met Leu Ala Ala
275 280 285
Gln Met Phe Ile Val Ser Pro Gln His His Trp Phe Val Gln Asp Cys
290 295 300
Asn Cys Ser Ile Tyr Pro Gly Thr Ile Thr Gly His Arg Met Ala Trp
305 310 315 320
Asp Met Met Met Asn Trp Ser Pro Thr Ala Thr Met Ile Leu Ala Tyr
325 330 335
Ala Met Arg Val Pro Glu Val Ile Ile Asp Ile Ile Ser Gly Ala His
340 345 350
Trp Gly Val Met Phe Gly Leu Ala Tyr Phe Ser Met Gln Gly Ala Trp
355 360 365
Ala Lys Val Val Val Ile Leu Leu Ala Ala Gly Val Asp Ala Arg
370 375 380
Thr His Thr Val Gly Gly Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr
385 390 395 400
Ser Leu Phe Asp Met Gly Pro Arg Gln Lys Ile Gln Leu Val Asn Thr
405 410 415
Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser
420 425 430
Leu His Thr Gly Phe Ile Ala Ser Leu Phe Tyr Thr His Ser Phe Asn
435 440 445
Ser Ser Gly Cys Pro Glu Arg Met Ser Ala Cys Arg Ser Ile Glu Ala
450 455 460
Phe Arg Val Gly Trp Gly Ala Leu Gln Tyr Glu Asp Asn Val Thr Asn
465 470 475 480
Pro Glu Asp Met Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Gln Cys

2053293_1.TXT

				485				490					495		
Gly	Val	Val	Ser	Ala	Lys	Thr	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr
			500					505					510		
Pro	Ser	Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Leu	Gly	Ala	Pro	Thr
			515					520				525			
Tyr	Thr	Trp	Gly	Glu	Asn	Glu	Thr	Asp	Val	Phe	Leu	Leu	Asn	Ser	Thr
						535					540				
Arg	Pro	Pro	Leu	Gly	Ser	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Ser
545					550					555					560
Gly	Tyr	Thr	Lys	Thr	Cys	Gly	Ala	Pro	Pro	Cys	Arg	Thr	Arg	Ala	Asp
				565					570					575	
Phe	Asn	Ala	Ser	Thr	Asp	Leu	Leu	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys
			580					585					590		
His	Pro	Asp	Thr	Thr	Tyr	Leu	Lys	Cys	Gly	Ser	Gly	Pro	Trp	Leu	Thr
		595					600					605			
Pro	Arg	Cys	Leu	Ile	Asp	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys
	610					615					620				
Thr	Val	Asn	Tyr	Thr	Ile	Phe	Lys	Ile	Arg	Met	Tyr	Val	Gly	Gly	Val
625					630					635					640
Glu	His	Arg	Leu	Thr	Ala	Ala	Cys	Asn	Phe	Thr	Arg	Gly	Asp	Arg	Cys
				645					650					655	
Asn	Leu	Glu	Asp	Arg	Asp	Arg	Ser	Gln	Leu	Ser	Pro	Leu	Leu	His	Ser
			660					665					670		
Thr	Thr	Glu	Trp	Ala	Ile	Leu	Pro	Cys	Ser	Tyr	Ser	Asp	Leu	Pro	Ala
		675					680					685			
Leu	Ser	Thr	Gly	Leu	Leu	His	Leu	His	Gln	Asn	Ile	Val	Asp	Val	Gln
						695					700				
Phe	Met	Tyr	Gly	Leu	Ser	Pro	Ala	Leu	Thr	Lys	Tyr	Ile	Val	Arg	Trp
705					710					715					720
Glu	Trp	Val	Ile	Leu	Leu	Phe	Leu	Leu	Leu	Ala	Asp	Ala	Arg	Val	Cys
				725						730				735	
Ala	Cys	Leu	Trp	Met	Leu	Ile	Leu	Leu	Gly	Gln	Ala	Glu	Ala	Ala	Leu
			740					745					750		
Glu	Lys	Leu	Val	Ile	Leu	His	Ala	Ala	Ser	Ala	Ala	Ser	Cys	Asn	Gly
			755				760						765		
Phe	Leu	Tyr	Phe	Val	Ile	Phe	Phe	Val	Ala	Ala	Trp	Tyr	Ile	Lys	Gly
	770					775					780				
Arg	Val	Val	Pro	Leu	Ala	Thr	Tyr	Ser	Leu	Thr	Gly	Leu	Trp	Ser	Phe
785					790					795					800
Ser	Leu	Leu	Leu	Leu	Ala	Leu	Pro	Gln	Gln	Ala	Tyr	Ala	Leu	Asp	Thr
				805					810					815	
Glu	Val	Ala	Ala	Ser	Cys	Gly	Gly	Val	Val	Leu	Val	Gly	Leu	Met	Ala
			820					825					830		
Leu	Thr	Leu	Ser	Pro	Tyr	Tyr	Lys	Arg	Tyr	Ile	Ser	Trp	Cys	Met	Trp
		835					840					845			
Trp	Leu	Gln	Tyr	Phe	Leu	Thr	Arg	Val	Glu	Ala	Gln	Leu	His	Val	Trp
	850					855					860				
Val	Pro	Pro	Leu	Asn	Val	Arg	Gly	Gly	Arg	Asp	Ala	Val	Ile	Leu	Leu
865					870					875					880
Met	Cys	Val	Val	His	Pro	Thr	Leu	Val	Phe	Asp	Ile	Thr	Lys	Leu	Leu
				885					890					895	
Leu	Ala	Ile	Phe	Gly	Pro	Leu	Trp	Ile	Leu	Gln	Ala	Ser	Leu	Leu	Lys
			900					905					910		
Val	Pro	Tyr	Phe	Val	Arg	Val	Gln	Gly	Leu	Leu	Arg	Ile	Cys	Ala	Leu
		915					920					925			
Ala	Arg	Lys	Ile	Ala	Gly	Gly	His	Tyr	Val	Gln	Met	Ala	Ile	Ile	Lys
	930					935					940				
Leu	Gly	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr	Asn	His	Leu	Thr	Pro	Leu
945					950					955					960
Arg	Asp	Trp	Ala	His	Asn	Gly	Leu	Arg	Asp	Leu	Ala	Val	Ala	Val	Glu
				965					970					975	
Pro	Val	Val	Phe	Ser	Arg	Met	Glu	Thr	Lys	Leu	Ile	Thr	Trp	Gly	Ala
			980					985					990		

2053293_1.TXT

Asp Thr Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala
 995 1000 1005
 Arg Arg Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser
 1010 1015 1020
 Lys Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr
 1025 1030 1035 1040
 Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys
 1045 1050 1055
 Asn Gln Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr
 1060 1065 1070
 Phe Leu Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly
 1075 1080 1085
 Ala Gly Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met
 1090 1095 1100
 Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly
 1105 1110 1115 1120
 Ser Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu
 1125 1130 1135
 Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser
 1140 1145 1150
 Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser
 1155 1160 1165
 Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe
 1170 1175 1180
 Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile
 1185 1190 1195 1200
 Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp
 1205 1210 1215
 Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu
 1220 1225 1230
 His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr
 1235 1240 1245
 Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala
 1250 1255 1260
 Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp Pro
 1265 1270 1275 1280
 Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr
 1285 1290 1295
 Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly
 1300 1305 1310
 Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala Thr
 1315 1320 1325
 Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly
 1330 1335 1340
 Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr
 1345 1350 1355 1360
 Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly Glu
 1365 1370 1375
 Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly Gly
 1380 1385 1390
 Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala
 1395 1400 1405
 Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly
 1410 1415 1420
 Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val Ser
 1425 1430 1435 1440
 Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile
 1445 1450 1455
 Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro
 1460 1465 1470
 Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val Ser Arg
 1475 1480 1485
 Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg

2053293_1.TXT

1490 1495 1500
 Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val
 1505 1510 1515 1520
 Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro
 1525 1530 1535
 Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu
 1540 1545 1550
 Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly
 1555 1560 1565
 Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly
 1570 1575 1580
 Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg
 1585 1590 1595 1600
 Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile
 1605 1610 1615
 Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu
 1620 1625 1630
 Gly Ala Val Gln Asn Glu Val Thr Leu Thr His Pro Ile Thr Lys Tyr
 1635 1640 1645
 Ile Met Thr Cys Met Ser Ala Asp Leu Glu Val Val Thr Ser Thr Trp
 1650 1655 1660
 Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser
 1665 1670 1675 1680
 Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro
 1685 1690 1695
 Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met
 1700 1705 1710
 Glu Glu Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu
 1715 1720 1725
 Ala Glu Gln Phe Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala Ser
 1730 1735 1740
 Arg His Ala Glu Val Ile Thr Pro Ala Val Gln Thr Asn Trp Gln Lys
 1745 1750 1755 1760
 Leu Glu Val Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile
 1765 1770 1775
 Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Ile Ala
 1780 1785 1790
 Ser Leu Met Ala Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly
 1795 1800 1805
 Gln Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu
 1810 1815 1820
 Ala Ala Pro Gly Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly
 1825 1830 1835 1840
 Ala Ala Ile Gly Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu
 1845 1850 1855
 Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
 1860 1865 1870
 Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
 1875 1880 1885
 Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
 1890 1895 1900
 Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 1905 1910 1915 1920
 Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
 1925 1930 1935
 His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu
 1940 1945 1950
 Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile
 1955 1960 1965
 Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
 1970 1975 1980
 Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
 1985 1990 1995 2000

2053293_1.TXT

Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln
 2005 2010 2015
 Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg
 2020 2025 2030
 Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met
 2035 2040 2045
 Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe
 2050 2055 2060
 Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro
 2065 2070 2075 2080
 Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu
 2085 2090 2095
 Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp
 2100 2105 2110
 Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu
 2115 2120 2125
 Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu
 2130 2135 2140
 Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val
 2145 2150 2155 2160
 Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr
 2165 2170 2175
 Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg
 2180 2185 2190
 Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser
 2195 2200 2205
 Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp
 2210 2215 2220
 Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu
 2225 2230 2235 2240
 Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys Val Val Ile
 2245 2250 2255
 Leu Asp Ser Phe Asp Pro Leu Val Ala Glu Glu Asp Glu Arg Glu Val
 2260 2265 2270
 Ser Val Pro Ala Glu Ile Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala
 2275 2280 2285
 Leu Pro Val Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr
 2290 2295 2300
 Trp Lys Lys Pro Asp Tyr Glu Pro Pro Val Val His Gly Cys Pro Leu
 2305 2310 2315 2320
 Pro Pro Pro Arg Ser Pro Pro Val Pro Pro Pro Arg Lys Lys Arg Thr
 2325 2330 2335
 Val Val Leu Thr Glu Ser Thr Leu Ser Thr Ala Leu Ala Glu Leu Ala
 2340 2345 2350
 Thr Lys Ser Phe Gly Ser Ser Ser Thr Ser Gly Ile Thr Gly Asp Asn
 2355 2360 2365
 Thr Thr Thr Ser Ser Glu Pro Ala Pro Ser Gly Cys Pro Pro Asp Ser
 2370 2375 2380
 Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly
 2385 2390 2395 2400
 Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser Ser Gly Ala
 2405 2410 2415
 Asp Thr Glu Asp Val Val Cys Cys Ser Met Ser Tyr Ser Trp Thr Gly
 2420 2425 2430
 Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys Leu Pro Ile Asn
 2435 2440 2445
 Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr Ser Thr
 2450 2455 2460
 Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val Thr Phe Asp Arg
 2465 2470 2475 2480
 Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys
 2485 2490 2495
 Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala

2053293_1.TXT

2500 2505 2510
 Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly
 2515 2520 2525
 Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn
 2530 2535 2540
 Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr
 2545 2550 2555 2560
 Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly
 2565 2570 2575
 Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg
 2580 2585 2590
 Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu
 2595 2600 2605
 Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg
 2610 2615 2620
 Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly
 2625 2630 2635 2640
 Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp
 2645 2650 2655
 Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln
 2660 2665 2670
 Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly
 2675 2680 2685
 Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg
 2690 2695 2700
 Ala Ser Gly Val Leu Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr
 2705 2710 2715 2720
 Ile Lys Ala Arg Ala Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr
 2725 2730 2735
 Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly
 2740 2745 2750
 Val Gln Glu Asp Ala Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr
 2755 2760 2765
 Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu
 2770 2775 2780
 Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His Asp Gly
 2785 2790 2795 2800
 Ala Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr Pro Leu
 2805 2810 2815
 Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn Ser Trp
 2820 2825 2830
 Leu Gly Asn Ile Ile Met Phe Ala Pro Thr Leu Trp Ala Arg Met Ile
 2835 2840 2845
 Leu Met Thr His Phe Phe Ser Val Leu Ile Ala Arg Asp Gln Leu Glu
 2850 2855 2860
 Gln Ala Leu Asn Cys Glu Ile Tyr Gly Ala Cys Tyr Ser Ile Glu Pro
 2865 2870 2875 2880
 Leu Asp Leu Pro Pro Ile Ile Gln Arg Leu His Gly Leu Ser Ala Phe
 2885 2890 2895
 Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys
 2900 2905 2910
 Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala
 2915 2920 2925
 Arg Ser Val Arg Ala Arg Leu Ser Arg Gly Gly Arg Ala Ala Ile
 2930 2935 2940
 Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu
 2945 2950 2955 2960
 Thr Pro Ile Ala Ala Ala Gly Arg Leu Asp Leu Ser Gly Trp Phe Thr
 2965 2970 2975
 Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Val Ser His Ala Arg
 2980 2985 2990
 Pro Arg Trp Phe Trp Phe Cys Leu Leu Leu Leu Ala Ala Gly Val Gly
 2995 3000 3005

Ile Tyr Leu Leu Pro Asn Arg
3010 3015

<210> 5
<211> 9611
<212> DNA
<213> Hepatitis C virus

```

<400> 5
gccagccccc tgatgggggc gacactccac catgaatcac tcccctgtga ggaactactg 60
tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgtcgtgcag cctccaggac 120
ccccctccc gggagagcca tagtggctct cggaaccggg gactacaccg gaattgccgg 180
gaagactggg tcctttcttg gataaaccga ctctatgccc ggccatttgg gcgtgcccc 240
gcaagactgc tagccgagta gcgttgggtt gcgaaaggcc ttgtggtact gcctgatagg 300
gtgcttgca gtgccccgg aggtctcgta gaccgtgcac catgagcaca aatcctaaac 360
ctcaaagaaa aacaaaaga aacaccaacc gtcgcccaca agacgttaag tttccgggcg 420
gcggccagat cgttggcgga gtatacttgt tgccgcgcag gggccccagg ttgggtgtgc 480
gcgcgacaag gaagacttcg gagcggctcc agccacgtgg aaggcgccag cccatcccta 540
aagatcggcg ctccactggc aaatcctggg gaaaaccagg atacccttgg cccctatacg 600
ggaatgaggg actcggctgg gcaggatggc tcctgtcccc ccgagggttc cgtccctctt 660
ggggcccaa tgacccccg cataggtcgc gcaaccgtgg taaggctatc gataccctaa 720
cgtgcggctt tgccgacctc atggggtaca tcctgtcgtt gggcgccccg ctggcgggcg 780
tcgccagagc tctcgcgcgt ggctgagag tcctggagga cggggttaat tttgcaacag 840
ggaacttacc cggttgctcc ttttctatct tcttgctggc cctgctgtcc tgcatacca 900
ccccgtctc cgctgccgaa gtgaagaaca tcagtaccgg ctacatggtg actaacgact 960
gcaccaatga cagattacc tggcagctcc aggtgctgt cctccacgtc cccgggtgcg 1020
tcccgctgca gaaagtggg aatgcattct agtgctggat accggtctca ccgaatgtgg 1080
ccgtgcagcg gcccggcgcc ctacgcagg gcttgcggac gcacatcgac atggttgtga 1140
tgtccgccac gctctgctct gccctctacg tgggggacct ctgcggtggg gtgatgctcg 1200
cagcccaaat gttcattgtc tcgccgcagc accactggtt tgtccaagac tgcaattgct 1260
ccatctaccc tgggtaccatc actggacacc gcatggcatg ggacatgatg atgaactggt 1320
cgcccacggc taccatgatc ttggcgtacg cgtgcgtgtt ccccgagggtc attatagaca 1380
tcattagcgg ggctcattgg ggctcatgtt tcggcttggc ctacttctct atgcaggag 1440
cgtgggcaaa agtcgttgtc atccttctgt tggccgccgg ggtggacgcg cgcacccata 1500
ctgttggggg ttctgcccgc cagaccaccg ggccctcac cagcttattt gacatgggccc 1560
ccaggcagaa aatccagctc gttaacacca atggcagctg gcacatcaac cgcacggccc 1620
tgaactgcaa tgaactcttg cacaccggct ttatcgcgtc tctgttctac acccacagct 1680
tcaactcgtc aggatgtccc gaacgcattg ccgcttgcg cagtatcgag gccttccggg 1740
tgggatgggg cgccttgcga tatgaggata atgtcaccaa tccagaggat atgagaccct 1800
attgctggca ctaccacca aggcagtgtg gcgtggtctc cgcaagact gtgtgtggcc 1860
cagtgtactg tttaccccc agcccagtgg tagtgggcac gaccgacagg cttggagcgc 1920
ccacttacac gtggggggag aatgagacag atgtcttctt attgaacagc actcggaccg 1980
cgctgggtgc atggttcggc tgacgttggg tgaactcttc tggctacacc aagacttgcg 2040
gcgcaccacc ctgcccgtact agagctgact tcaacgccag cacggacctg ttgtgcccc 2100
cggactgttt taggaagcat cctgatacca cttacctcaa atgcggtctt gggccctggc 2160
tcacgccaa gtgcctgatc gactaccctt acaggctctg gcattacccc tgcacagtta 2220
actataccat cttcaaaata aggatgtatg tgggaggggt tgagcacagg ctacggctg 2280
catgcaattt cactcgtggg gatcgttgca acttgagga cagagacaga agtcaactgt 2340
ctcctttgtt gcactccacc acggaatggg ccattttacc ttgctcttac tcggacctgc 2400
ccgcttgtc gactggtctt ctccacctcc accaaaacat cgtggacgta caattcatgt 2460
atggcctatc acctgccctc acaaaataca tcgtccgatg ggagtgggta atactcttat 2520
tcctgctctt agcggacgcc agggtttgcg cctgcttatg gatgctcatc ttgttgggac 2580
aggccgaagc agctttggag aacctcgtaa tactcaatgc agcatccctg gccgggacgc 2640
acggcttgtt gtcttctctc gtttgcgtg gtatctgaag ggtatggggg 2700
tgcccggagc ggtctacgcc ctctacggga tgtggcctct cctcctgctc ctgctggcgt 2760
tgccctcagc ggcataatgca ctggacacgg aggtggccgc gtcgtgtggc ggcgttgttc 2820
ttgtcgggtt aatggcgctg actctgtcgc catattacaa gcgctatatc agctggtgca 2880
tgtgttggct tcagtatttt ctgaccagag tagaagcgca actgcacgtg tgggttcccc 2940
ccctcaactg ccgggggggg cgcatgtccg cctcttact catgtgtgta gtacacccga 3000
ccctggtatt tgacatcacc aaactactcc tggccatctt cggaccttct tggattcttc 3060
aagccagttt gcttaaagtc ccctacttct tgcgcgttca aggccttctc cggatctgcg 3120
cgctagcgcg gaagatagcc ggaggtcatt acgtgcaaat ggccatcatc aagttagggg 3180

```

2053293_1.TXT

cgcttactgg	cacctatgtg	tataaccatc	tcacccctct	tcgagactgg	gcgacacaacg	3240
gcctgcgaga	tctggccgtg	gctgtggaac	cagtcgtctt	ctcccgaatg	gagaccaagc	3300
tcatcacgtg	gggggagat	accgccgctg	gcggtgacat	catcaacggc	ttggccgtct	3360
ctgcccgtag	ggggcaggag	atactgcttg	ggccagccga	cggaatggct	tccaaggggt	3420
ggaggttgct	ggcgcccatc	acggcgtagc	cccagcagac	gagaggcctc	ctagggtgta	3480
taatcaccag	cctgactggc	cgggacaaaa	accaagtggg	gggtgaggtc	cagatcgtgt	3540
caactgctac	ccaaaccttc	ctggcaacgt	gcatcaatgg	ggtatgctgg	actgtctacc	3600
acggggccgg	aacgaggacc	atcgcatcac	ccaaggggtc	tgatcatccag	atgtatacca	3660
atgtggacca	agaccttggt	ggctggcccc	ctcctcaagg	ttcccgtca	ttgacaccct	3720
gtacctgagg	ctcctcgga	ctttacctgg	tcacgaggca	cgccgatgtc	attcccgtgc	3780
gccggcgagg	tgatagcagg	ggtagcctgc	tttcgccccg	gcccatttcc	tacttgaaag	3840
gctcctcggg	gggtccgctg	ttgtgccccg	cgggacacgc	cgtgggccta	ttcagggccg	3900
cggtgtgcac	ccgtggagtg	gctaaagcgg	tggactttat	ccctgtggag	aacctagggg	3960
caaccatgag	atccccggtg	ttcacggaca	actcctctcc	accagcagtg	ccccagagct	4020
tccaggtggc	ccacctgcat	gctcccaccg	gcagcggtaa	gagcaccaag	gtcccggctg	4080
cgtatcgagc	ccagggtctac	aaggtgttgg	tgctcaacc	ctctgttgct	gcaacgctgg	4140
gctttgggtg	ttacatgtcc	aaggcccatc	gggttgatcc	taatatcagg	accgggggtg	4200
gaacaattac	cactggcagc	ccatcacgt	actccacct	cggaagtcc	cttgccgacg	4260
gcgggtgctc	aggaggtgct	tatgacataa	taatttgtga	cgagtgccac	tccacggatg	4320
ccacatccat	cttgggcatc	ggcactgtcc	ttgaccaagc	agagactgcg	ggggcgagac	4380
tggtttgtgct	cgtcactgct	acccctccgg	gctccgtcac	tgtgtcccat	ctaacatcg	4440
aggaggtttg	ctgtgccacc	accggagaga	tcccccttta	cggaaggct	atccccctcg	4500
aggtgatcaa	ggggggaaga	catctcatct	tctgccactc	aaagaagaag	tgcgacgagc	4560
tcgccgcgaa	gctggctcgca	ttgggcatca	atgccgtggc	ctactaccgc	ggtcttgacg	4620
tgtctgtcat	cccgaccagc	ggcgatgttg	tcgtcgtgtc	gaccgatgct	ctcatgactg	4680
gctttaccgg	cgacttcgac	tctgtgatag	actgcaacac	gtgtgtcact	cagacagtgc	4740
atttcagcct	tgacctatcc	tttaccattg	agacaaccac	gctccccag	gatgctgtct	4800
ccaggactca	acgccggggc	aggactggca	gggggaagcc	aggcatctat	agatttgtgg	4860
caccggggga	gcgccccctc	ggcatgttcg	actcgtccgt	cctctgtgag	tgctatgacg	4920
cgggctgtgc	ttggtatgag	ctcacgcccc	ccgagactac	agttaggcta	cgagcgtaca	4980
tgaacacccc	ggggcttccc	gtgtgccagg	accatcttga	atthtgggag	ggcgtcttta	5040
cgggcctcac	tcatatagat	gcccactttt	tatcccagac	aaagcagagt	ggggagagct	5100
ttccttacct	ggtagcgtag	caagccaccg	tgctgcgtag	ggctcaagcc	cctcccccat	5160
cgtgggacca	gatgtggaag	tgtttgatcc	gccttaaac	caccctccat	gggccaacac	5220
ccctgctata	cagactgggc	gctgttcaga	atgaagtcac	cctgacgcac	ccaatcacca	5280
aatacatcat	gacatgcatg	tcggccgacc	tggaggtcgt	cacgagcacc	tgggtgctcg	5340
ttggcggcgt	cctggctgct	ctggccgctg	attgcctgtc	aacaggctgc	gtggctatag	5400
tgggcaggat	cgtcttgtcc	gggaagcccg	caattatacc	tgacagggag	gttctctacc	5460
aggagtctga	tgatgggaa	gagtgccttc	agcacttacc	gtacatcgag	caagggatga	5520
tgctcgctga	gcagttcaag	cagaaggccc	tcggcctcct	gcagaccgag	tcccgcctatg	5580
cagaggttat	caccctgct	gtccagacca	actggcagaa	actcgagggtc	ttttgggcga	5640
agcacatgtg	gaatttcac	agtgggatac	aatacttggc	gggcctgtca	acgctgcctg	5700
gtaaccccgc	cattgcttca	ttgatggctt	ttacagtgc	cgtcaccagc	ccactaacca	5760
ctggcccaac	ctctctcttc	aacatattgg	gggggtgggt	ggctgcccag	ctcgccgccc	5820
ccggtgccgc	tactgccttt	gtgggtgctg	gcctagctgg	cgccgccatc	ggcagcgttg	5880
gactggggaa	ggtcctcgtg	gacattcttg	cagggatagg	cgcgggcgtg	gcgggagctc	5940
ttgtagcatt	caagatcatg	agcggtgagg	tcccctccac	ggaggacctg	gtcaatctgc	6000
tgcccgccat	cctctcgctc	ggagcccttg	tagtcgggtg	ggtctgcgca	gcaatactgc	6060
gccggcacgt	tgcccggggc	gagggggcag	tgcaatggat	gaaccggcta	atagccttcg	6120
cctcccgggg	gaaccatggt	tccccacgc	actacgtgcc	ggagagcgat	gcagccgccc	6180
gcgtcactgc	catactcagc	agcctcactg	taaccagct	cctgaggcga	ctgcatcagt	6240
ggataagctc	ggagtgtacc	actccatgct	ccggttcctg	gctaagggac	atctgggact	6300
ggatatgcga	ggtgctgagc	gactttaaga	cctggctgaa	agccaagctc	atgccacaac	6360
tgcttgggat	tccctttgtg	tccctgccagc	gcgggtatag	gggggtctgg	cgaggagacg	6420
gcattatgca	cactcgctgc	ctgagatcac	ctgagatcac	tggaatgtgc	aaaaacggga	6480
cgatgaggat	cgtcggtcct	aggacctgca	ggaacatgtg	gagtgggacg	ttccccatta	6540
acgcctacac	cacgggcccc	tgtactcccc	ttcctgcgcc	gaactataag	ttcgcgctgt	6600
ggaggggtgtc	tgagaggaa	tacgtggaga	taaggcgggt	gggggacttc	cactacgtat	6660
cgggatagac	tactgacaat	cttaaattgcc	cgtgccagat	cccatcgccc	gaatttttca	6720
cagaatttga	cggggtgcgc	ctacacaggt	ttgcgcccc	ttgcaagccc	ttgctgcggg	6780
aggaggtatc	attcagagta	ggactccacg	agtaccgggt	ggggtcgcaa	ttaccttgcg	6840
agcccgaacc	ggacgtagcc	gtgttgacgt	ccatgctcac	tgatccctcc	catataacag	6900
cagaggcggc	cgggagaagg	ttggcgagag	ggtcaccccc	ttctatggcc	agctcctcgg	6960

2053293_1.TXT

```

ctagccagct gtccgctcca tctctcaagg caacttgac cgccaacccat gactcccctg 7020
acgccgagct catagaggct aacctcctgt ggaggcagga gatgggcggc aacatcacca 7080
gggttgagtc agagaacaaa gtggtgattc tggactcctt cgatccgctt gtggcagagg 7140
aggatgagcg ggaggtctcc gtacctgcag aaattctgcg gaagtctcgg agattcgccc 7200
gggccctgcc cgtctgggcg cgcccgact acaaccccc gctagtagag acgtggaaaa 7260
agcctgacta cgaaccacct gtggtccatg gctgcccgt accacctcca cggctcccctc 7320
ctgtgcctcc gcctcgaaa aagcgtacgg tggctctcac cgaatcaacc ctatctactg 7380
ccttgccga gcttgccacc aaaagttttg gcagctcctc aacttccggc attacgggcg 7440
acaatagcac aacatcctct gagcccgccc cttctggctg ccccccgac tccgacgttg 7500
agtcctattc ttccatgccc cccctggagg gggagcctgg ggatccggat ctacgcgacg 7560
ggcatggtc gacggtcagt agtggggcg acacggaaga tgtcgtgtgc tgctcaatgt 7620
cttattcctg gacaggcgca ctgctaccc cgtgcgctgc ggaagaacaa aaactgccc 7680
tcaacgcact gagcaactcg ttgctacgcc atcacaatct ggtgtattcc accacttcac 7740
gcagtgttg ccaaaggcag aagaaagtca catttgacag actgcaagtt ctggacagcc 7800
attaccagga cgtgctcaag gaggtcaaag cagcggcgctc aaaagtgaag gctaacttgc 7860
tatccgtaga ggaagcttgc agcctgacgc cccacattc agccaaatcc aagtttggct 7920
atggggcaaa agacgtccgt tgccatgcca gaaaggccgt agcccacatc aactccgtgt 7980
ggaaagacct tctggaagac agtghtaacac caatagacac taccatcatg gccaagaacg 8040
aggttttctg cgttcagcct gagaaggggg gtcgtaagcc agctcgtctc atcgtgttcc 8100
ccgacctggg cgtgcgcgtg tgcgagaaga tggccctgta cgacgtgggt agcaagctcc 8160
ccctggccgt gatgggaagc tcctacggat tccaatactc accaggacag cgggttgaat 8220
tcctcgtgca agcgtggaag tccaagaaga ccccgatggg gttctcgtat gataccgct 8280
gttttgactc cacagtcact gagagcgaca tccgtacgga ggaggcaatt taccaatgtt 8340
gtgacctgga cccccaagcc cgcgtggcca tcaagtccct cactgagagg ctttatgttg 8400
ggggccctct taccaattca aggggggaaa actgcggcta ccgcaggtgc cgcgcgagcg 8460
gcgtactgac aactagctgt ggtaacaccc tcacttgcta catcaaggcc cgggcagcct 8520
gtcagaccgc agggctccag gactgcacca tgctcgtgtg tggcgacgac ttagtcgtta 8580
tctgtgaaag tgcgggggtc caggaggacg cggcgagcct gagagccttc acggaggcta 8640
tgaccaggtg ctccgcccc cccggggacc cccacaacc agaatacgac ttggagctta 8700
taacatcatg ctctccaac gtgtcagtcg ccacagcgg cgctggaaag agggctact 8760
accttaccg tgaccctaca acccccctcg cgagagccgc gtgggagaca gcaagacaca 8820
ctccagtcaa ttcttgcta ggcaacataa tcatgtttgc cccacactg tgggcgagga 8880
tgatactgat gacctattc tttagcgtc tcatagccag ggatcagctt gaacaggctc 8940
ttaactgtga gatctacgga gcctgtact ccatagaacc actggatcta cctccaatca 9000
ttcaaagact ccatggcctc agcgcatttt cactccacag ttactctcca ggtgaaatca 9060
ataggggtgg cgcagcctc agaaaacttg gggctccgcc cttgcgagct tggagacacc 9120
ggggccggag cgtccgcgt aggcttctgt ccagaggagg cagggtgct atatgtggca 9180
agtacctctt caactgggca gtaagaacaa agctcaaact cactccaata gcggccgctg 9240
gccggctgga cttgtccgg tggttcacgg ctggtacag cgggggagac atttatcat 9300
gcgtgtctca tgcccgccc cgtggttct ggttttgct actcctgctc gctgcagggg 9360
taggcattca cctcctcccc aaccgatgaa gggtggggt aacactccgg cctcttaagc 9420
catttcctgt ttttttttt ttttttttt ttttttttt ttttttttt tttcctttcc 9480
ttcttttttt cttttcttt tcccttctt aatggtggct ccatcttagc cctagtcacg 9540
gctagctgtg aaaggtccgt gagccgcagt actgcagaga gtgctgatac tggcctctct 9600
cgagatcatg t 9611

```

<210> 6
 <211> 3015
 <212> PRT
 <213> Hepatitis C virus

<400> 6
 Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
 1 5 10 15
 Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25 30
 Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
 35 40 45
 Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50 55 60
 Ile Pro Lys Asp Arg Arg Ser Thr Gly Lys Ser Trp Gly Lys Pro Gly
 65 70 75 80
 Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Leu Gly Trp Ala Gly Trp

2053293_1.TXT

				85				90					95			
Leu	Leu	Ser	Pro	Arg	Gly	Ser	Arg	Pro	Ser	Trp	Gly	Pro	Asn	Asp	Pro	
			100					105					110			
Arg	His	Arg	Ser	Arg	Asn	Val	Gly	Lys	Val	Ile	Asp	Thr	Leu	Thr	Cys	
		115					120					125				
Gly	Phe	Ala	Asp	Leu	Met	Gly	Tyr	Ile	Pro	Val	Val	Gly	Ala	Pro	Leu	
	130					135					140					
Gly	Gly	Val	Ala	Arg	Ala	Leu	Ala	His	Gly	Val	Arg	Val	Leu	Glu	Asp	
145					150					155					160	
Gly	Val	Asn	Phe	Ala	Thr	Gly	Asn	Leu	Pro	Gly	Cys	Ser	Phe	Ser	Ile	
				165					170					175		
Phe	Leu	Leu	Ala	Leu	Leu	Ser	Cys	Ile	Thr	Thr	Pro	Val	Ser	Ala	Ala	
			180					185					190			
Glu	Val	Lys	Asn	Ile	Ser	Thr	Gly	Tyr	Met	Val	Thr	Asn	Asp	Cys	Thr	
		195					200					205				
Asn	Asp	Ser	Ile	Thr	Trp	Gln	Leu	Gln	Ala	Ala	Val	Leu	His	Val	Pro	
		210				215					220					
Gly	Cys	Val	Pro	Cys	Glu	Lys	Val	Gly	Asn	Ala	Ser	Gln	Cys	Trp	Ile	
225					230					235					240	
Pro	Val	Ser	Pro	Asn	Val	Ala	Val	Gln	Arg	Pro	Gly	Ala	Leu	Thr	Gln	
				245					250					255		
Gly	Leu	Arg	Thr	His	Ile	Asp	Met	Val	Val	Met	Ser	Ala	Thr	Leu	Cys	
			260					265					270			
Ser	Ala	Leu	Tyr	Val	Gly	Asp	Leu	Cys	Gly	Gly	Val	Met	Leu	Ala	Ala	
		275					280					285				
Gln	Met	Phe	Ile	Val	Ser	Pro	Gln	His	His	Trp	Phe	Val	Gln	Asp	Cys	
	290					295					300					
Asn	Cys	Ser	Ile	Tyr	Pro	Gly	Thr	Ile	Thr	Gly	His	Arg	Met	Ala	Trp	
305					310					315					320	
Asp	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Ala	Thr	Met	Ile	Leu	Ala	Tyr	
				325					330					335		
Ala	Met	Arg	Val	Pro	Glu	Val	Ile	Ile	Asp	Ile	Ile	Ser	Gly	Ala	His	
			340					345					350			
Trp	Gly	Val	Met	Phe	Gly	Leu	Ala	Tyr	Phe	Ser	Met	Gln	Gly	Ala	Trp	
		355					360					365				
Ala	Lys	Val	Val	Val	Ile	Leu	Leu	Leu	Ala	Ala	Gly	Val	Asp	Ala	Arg	
	370					375					380					
Thr	His	Thr	Val	Gly	Gly	Ser	Ala	Ala	Gln	Thr	Thr	Gly	Arg	Leu	Thr	
385					390					395					400	
Ser	Leu	Phe	Asp	Met	Gly	Pro	Arg	Gln	Lys	Ile	Gln	Leu	Val	Asn	Thr	
				405					410					415		
Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	Ser	
			420					425					430			
Leu	His	Thr	Gly	Phe	Ile	Ala	Ser	Leu	Phe	Tyr	Thr	His	Ser	Phe	Asn	
		435					440					445				
Ser	Ser	Gly	Cys	Pro	Glu	Arg	Met	Ser	Ala	Cys	Arg	Ser	Ile	Glu	Ala	
	450					455				460						
Phe	Arg	Val	Gly	Trp	Gly	Ala	Leu	Gln	Tyr	Glu	Asp	Asn	Val	Thr	Asn	
465					470					475					480	
Pro	Glu	Asp	Met	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Pro	Pro	Arg	Gln	Cys	
				485					490					495		
Gly	Val	Val	Ser	Ala	Lys	Thr	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr	
			500					505					510			
Pro	Ser	Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Leu	Gly	Ala	Pro	Thr	
		515					520					525				
Tyr	Thr	Trp	Gly	Glu	Asn	Glu	Thr	Asp	Val	Phe	Leu	Leu	Asn	Ser	Thr	
	530					535					540					
Arg	Pro	Pro	Leu	Gly	Ser	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Ser	
545					550					555					560	
Gly	Tyr	Thr	Lys	Thr	Cys	Gly	Ala	Pro	Pro	Cys	Arg	Thr	Arg	Ala	Asp	
				565					570					575		
Phe	Asn	Ala	Ser	Thr	Asp	Leu	Leu	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys	
			580					585					590			

2053293_1.TXT

His Pro Asp Thr Thr Tyr Leu Lys Cys Gly Ser Gly Pro Trp Leu Thr
 595 600 605
 Pro Arg Cys Leu Ile Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys
 610 615 620
 Thr Val Asn Tyr Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly Val
 625 630 635 640
 Glu His Arg Leu Thr Ala Ala Cys Asn Phe Thr Arg Gly Asp Arg Cys
 645 650 655
 Asn Leu Glu Asp Arg Asp Arg Ser Gln Leu Ser Pro Leu Leu His Ser
 660 665 670
 Thr Thr Glu Trp Ala Ile Leu Pro Cys Ser Tyr Ser Asp Leu Pro Ala
 675 680 685
 Leu Ser Thr Gly Leu Leu His Leu His Gln Asn Ile Val Asp Val Gln
 690 695 700
 Phe Met Tyr Gly Leu Ser Pro Ala Leu Thr Lys Tyr Ile Val Arg Trp
 705 710 715 720
 Glu Trp Val Ile Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Val Cys
 725 730 735
 Ala Cys Leu Trp Met Leu Ile Leu Leu Gly Gln Ala Glu Ala Ala Leu
 740 745 750
 Glu Asn Leu Val Ile Leu Asn Ala Ala Ser Leu Ala Gly Thr His Gly
 755 760 765
 Leu Val Ser Phe Leu Val Phe Phe Cys Phe Ala Trp Tyr Leu Lys Gly
 770 775 780
 Arg Trp Val Pro Gly Ala Val Tyr Ala Leu Tyr Gly Met Trp Pro Leu
 785 790 795 800
 Leu Leu Leu Leu Leu Ala Leu Pro Gln Arg Ala Tyr Ala Leu Asp Thr
 805 810 815
 Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly Leu Met Ala
 820 825 830
 Leu Thr Leu Ser Pro Tyr Tyr Lys Arg Tyr Ile Ser Trp Cys Met Trp
 835 840 845
 Trp Leu Gln Tyr Phe Leu Thr Arg Val Glu Ala Gln Leu His Val Trp
 850 855 860
 Val Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val Ile Leu Leu
 865 870 875 880
 Met Cys Val Val His Pro Thr Leu Val Phe Asp Ile Thr Lys Leu Leu
 885 890 895
 Leu Ala Ile Phe Gly Pro Leu Trp Ile Leu Gln Ala Ser Leu Leu Lys
 900 905 910
 Val Pro Tyr Phe Val Arg Val Gln Gly Leu Leu Arg Ile Cys Ala Leu
 915 920 925
 Ala Arg Lys Ile Ala Gly Gly His Tyr Val Gln Met Ala Ile Ile Lys
 930 935 940
 Leu Gly Ala Leu Thr Gly Thr Tyr Val Tyr Asn His Leu Thr Pro Leu
 945 950 955 960
 Arg Asp Trp Ala His Asn Gly Leu Arg Asp Leu Ala Val Ala Val Glu
 965 970 975
 Pro Val Val Phe Ser Arg Met Glu Thr Lys Leu Ile Thr Trp Gly Ala
 980 985 990
 Asp Thr Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala
 995 1000 1005
 Arg Arg Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser
 1010 1015 1020
 Lys Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr
 1025 1030 1035 1040
 Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys
 1045 1050 1055
 Asn Gln Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr
 1060 1065 1070
 Phe Leu Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly
 1075 1080 1085
 Ala Gly Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met

2053293_1.TXT

1090 1095 1100
 Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly
 1105 1110 1115 1120
 Ser Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu
 1125 1130 1135
 Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser
 1140 1145 1150
 Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser
 1155 1160 1165
 Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe
 1170 1175 1180
 Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile
 1185 1190 1195 1200
 Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp
 1205 1210 1215
 Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu
 1220 1225 1230
 His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr
 1235 1240 1245
 Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala
 1250 1255 1260
 Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp Pro
 1265 1270 1275 1280
 Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr
 1285 1290 1295
 Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly
 1300 1305 1310
 Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala Thr
 1315 1320 1325
 Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly
 1330 1335 1340
 Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr
 1345 1350 1355 1360
 Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly Glu
 1365 1370 1375
 Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly Gly
 1380 1385 1390
 Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala
 1395 1400 1405
 Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly
 1410 1415 1420
 Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val Val Ser
 1425 1430 1435 1440
 Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile
 1445 1450 1455
 Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro
 1460 1465 1470
 Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val Ser Arg
 1475 1480 1485
 Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg
 1490 1495 1500
 Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val
 1505 1510 1515 1520
 Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro
 1525 1530 1535
 Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu
 1540 1545 1550
 Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly
 1555 1560 1565
 Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly
 1570 1575 1580
 Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg
 1585 1590 1595 1600

2053293_1.TXT

Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile
1605 1610 1615
Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu
1620 1625 1630
Gly Ala Val Gln Asn Glu Val Thr Leu Thr His Pro Ile Thr Lys Tyr
1635 1640 1645
Ile Met Thr Cys Met Ser Ala Asp Leu Glu Val Val Thr Ser Thr Trp
1650 1655 1660
Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Tyr Cys Leu Ser
1665 1670 1675 1680
Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro
1685 1690 1695
Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met
1700 1705 1710
Glu Glu Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu
1715 1720 1725
Ala Glu Gln Phe Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala Ser
1730 1735 1740
Arg His Ala Glu Val Ile Thr Pro Ala Val Gln Thr Asn Trp Gln Lys
1745 1750 1755 1760
Leu Glu Val Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile
1765 1770 1775
Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Ile Ala
1780 1785 1790
Ser Leu Met Ala Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly
1795 1800 1805
Gln Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu
1810 1815 1820
Ala Ala Pro Gly Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly
1825 1830 1835 1840
Ala Ala Ile Gly Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu
1845 1850 1855
Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
1860 1865 1870
Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
1875 1880 1885
Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
1890 1895 1900
Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
1905 1910 1915 1920
Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
1925 1930 1935
His Tyr Val Pro Glu Ser Asp Ala Ala Arg Val Thr Ala Ile Leu
1940 1945 1950
Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile
1955 1960 1965
Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
1970 1975 1980
Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
1985 1990 1995 2000
Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln
2005 2010 2015
Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg
2020 2025 2030
Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met
2035 2040 2045
Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe
2050 2055 2060
Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro
2065 2070 2075 2080
Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu
2085 2090 2095
Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp

2053293_1.TXT

2100 2105 2110
 Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu
 2115 2120 2125
 Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu
 2130 2135 2140
 Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val
 2145 2150 2155 2160
 Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr
 2165 2170 2175
 Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg
 2180 2185 2190
 Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser
 2195 2200 2205
 Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp
 2210 2215 2220
 Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu
 2225 2230 2235 2240
 Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys Val Val Ile
 2245 2250 2255
 Leu Asp Ser Phe Asp Pro Leu Val Ala Glu Glu Asp Glu Arg Glu Val
 2260 2265 2270
 Ser Val Pro Ala Glu Ile Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala
 2275 2280 2285
 Leu Pro Val Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr
 2290 2295 2300
 Trp Lys Lys Pro Asp Tyr Glu Pro Pro Val Val His Gly Cys Pro Leu
 2305 2310 2315 2320
 Pro Pro Pro Arg Ser Pro Pro Val Pro Pro Pro Arg Lys Lys Arg Thr
 2325 2330 2335
 Val Val Leu Thr Glu Ser Thr Leu Ser Thr Ala Leu Ala Glu Leu Ala
 2340 2345 2350
 Thr Lys Ser Phe Gly Ser Ser Ser Thr Ser Gly Ile Thr Gly Asp Asn
 2355 2360 2365
 Thr Thr Thr Ser Ser Glu Pro Ala Pro Ser Gly Cys Pro Pro Asp Ser
 2370 2375 2380
 Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly
 2385 2390 2395 2400
 Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser Ser Gly Ala
 2405 2410 2415
 Asp Thr Glu Asp Val Val Cys Cys Ser Met Ser Tyr Ser Trp Thr Gly
 2420 2425 2430
 Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys Leu Pro Ile Asn
 2435 2440 2445
 Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr Ser Thr
 2450 2455 2460
 Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val Thr Phe Asp Arg
 2465 2470 2475 2480
 Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys
 2485 2490 2495
 Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala
 2500 2505 2510
 Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly
 2515 2520 2525
 Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn
 2530 2535 2540
 Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr
 2545 2550 2555 2560
 Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly
 2565 2570 2575
 Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg
 2580 2585 2590
 Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu
 2595 2600 2605

2053293_1.TXT

Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg
 2610 2615 2620
 Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly
 2625 2630 2635 2640
 Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp
 2645 2650 2655
 Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln
 2660 2665 2670
 Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly
 2675 2680 2685
 Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg
 2690 2695 2700
 Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr
 2705 2710 2715 2720
 Ile Lys Ala Arg Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr
 2725 2730 2735
 Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly
 2740 2745 2750
 Val Gln Glu Asp Ala Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr
 2755 2760 2765
 Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu
 2770 2775 2780
 Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His Asp Gly
 2785 2790 2795 2800
 Ala Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr Pro Leu
 2805 2810 2815
 Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn Ser Trp
 2820 2825 2830
 Leu Gly Asn Ile Ile Met Phe Ala Pro Thr Leu Trp Ala Arg Met Ile
 2835 2840 2845
 Leu Met Thr His Phe Phe Ser Val Leu Ile Ala Arg Asp Gln Leu Glu
 2850 2855 2860
 Gln Ala Leu Asn Cys Glu Ile Tyr Gly Ala Cys Tyr Ser Ile Glu Pro
 2865 2870 2875 2880
 Leu Asp Leu Pro Pro Ile Ile Gln Arg Leu His Gly Leu Ser Ala Phe
 2885 2890 2895
 Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys
 2900 2905 2910
 Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala
 2915 2920 2925
 Arg Ser Val Arg Ala Arg Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile
 2930 2935 2940
 Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu
 2945 2950 2955 2960
 Thr Pro Ile Ala Ala Ala Gly Arg Leu Asp Leu Ser Gly Trp Phe Thr
 2965 2970 2975
 Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Val Ser His Ala Arg
 2980 2985 2990
 Pro Arg Trp Phe Trp Phe Cys Leu Leu Leu Ala Ala Gly Val Gly
 2995 3000 3005
 Ile Tyr Leu Leu Pro Asn Arg
 3010 3015

<210> 7
 <211> 9611
 <212> DNA
 <213> Hepatitis C virus

<400> 7
 gccagccccc tgatgggggc gacactccac catgaatcac tcccctgtga ggaactactg 60
 tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgtcgtgcag cctccaggac 120
 cccccctccc gggagagcca tagtggtctg cggaaccggt gaggtaaccg gaattgccag 180

2053293_1.TXT

gacgaccggg	tccttttctt	gataaaccgg	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcaagactgc	tagccgagta	gtgttgggtc	gcgaaaggcc	ttgtgggtact	gcctgatagg	300
gtgcttgca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcaca	aatcctaaac	360
ctcaaagaaa	aaccaaagaa	aacaccaacc	gtcgccca	agacgttaag	tttccgggcg	420
gcggccagat	cggtggcgga	gtatacttgt	tgccgcgag	gggccccagg	ttgggtgtgc	480
gcgcgacaag	gaagacttcg	gagcgggtccc	agccacgtgg	aaggcgccag	cccatcccta	540
aagatcggcg	ctccactggc	aaatcctggg	gaaaaccagg	atacccttgg	ccccatacag	600
ggaatgaggg	actcggctgg	gcaggatggc	tcctgtcccc	ccgaggttcc	cgtccctctt	660
ggggccccaa	tgacccccgg	cataggtcgc	gcaacgtggg	taaggctatc	gataaccctaa	720
cgtgcggtct	tgccgacctc	atgggttaca	tccctgtcgt	gggcccccg	ctcggcgggc	780
tcgccagagc	tctcgcgcac	ggcgtgagga	tcctggagga	cggggttaat	tttgcaacag	840
ggaacttacc	cggttgctcc	ttttctatct	tcttgctggc	cctgctgtcc	tgcatcacca	900
ccccgggtct	cgctgccgaa	gtgaagaaca	tcagtaccgg	ctacatggtg	actaacgact	960
gcaccaatga	cagcattacc	tggcagctcc	aggctgctgt	cctccacgtc	cccgggtgcg	1020
tcccgctgca	gaaagtgggg	aatgcattct	agtgtggat	accggtctca	ccgaatgtgg	1080
ccgtgcagcg	gccccggcgc	ctcacgcagc	gcttgcggac	gcacatcgac	atggttgtga	1140
tgccgcccac	gctctgctct	gccctctacg	tgggggacct	ctgcggtggg	gtgatgctcg	1200
cagcccaaat	gttcattgtc	tcgcccagc	accactggtt	tgtccaagac	tgcaattgct	1260
ccatctaccc	tggtaccatc	actggacacc	gcatggcatg	ggacatgatg	atgaactggg	1320
cgccccacgg	taccatgatc	ttggcgtacg	cgtgctgtgt	ccccgaggtc	attatagaca	1380
tcattagcgg	ggctcattgg	ggcgtcatgt	tcggcttggc	ctacttctct	atgcagggag	1440
cgtgggcgaa	agtcttggc	atccttctgt	tggccgcccg	ggtggacgcg	cgcaccata	1500
ctgttggggg	ttctgcccgc	cagaccaccg	ggcgctcac	cagcttattt	gacatgggccc	1560
ccaggcagaa	aatccagctc	gttaacacca	atggcagctg	gcacatcaac	cgcaccgccc	1620
tgaactgcaa	tgactccttg	cacaccggct	ttatcgcgct	tctgttctac	acccacagct	1680
tcaactcgct	aggatgtccc	gaacgcattg	ccgcctgccc	cagtatcgag	gccttccggg	1740
tgggatgggg	cgccttgcaa	tatgaggata	atgtcaccac	tccagaggat	atgagaccct	1800
attgctggca	ctaccaccca	aggcagtggt	cgctgggtct	cgcgaagact	gtgtgtggcc	1860
cagtgtactg	tttacccccc	agcccagtg	tagtgggcac	gaccgacagg	cttggagcgc	1920
ccacttacac	gtgggggggag	aatgagacag	atgtcttctt	attgaacagc	actcgaccac	1980
cgctgggggt	atggttcggc	tgacagtgga	tgaactcttc	tggtacaccc	aagacttgcg	2040
gcgcaccacc	ctgcccgtact	agagctgact	tcaacgccag	cacggacctg	ttgtgcccc	2100
cggactgttt	taggaagcat	cctgatacca	cttacctcaa	atgcggctct	gggcccctgg	2160
tcacgcgaag	gtgcctgatc	gactaccctt	acaggctctg	gcattacccc	tgacaggtta	2220
actataccat	cttcaaaata	aggatgtatg	tgggaggggt	tgagcacagg	ctcacggctg	2280
catgcaattt	cactcgtggg	gatcgttgca	acttggagga	cagagacaga	agtcaactgt	2340
ctcctttgtt	gcactccacc	acggaatggg	ccattttacc	ttgctcttac	tcggacctgc	2400
ccgccttgct	gactggtctt	ctccacctcc	acaaaacat	cgtggacgta	caattcatgt	2460
atggcctatc	acctgccctc	acaaaataca	tcgtccgatg	ggagtgggta	atactcttat	2520
tcctgctctt	agcggacgcc	agggtttgcg	cctgcttatg	gatgctcatc	ttgttgggccc	2580
aggccgaagc	agcactagag	aagctggtca	tcttgacgc	tgcgagcgca	gctagctgca	2640
atggcttctt	atattttgtc	atctttttcg	tggctgcttg	gtacatcaag	ggctgggtag	2700
tcctcttagc	tacctattcc	ctcactggcc	tgtggtcctt	tagcctactg	ctcctagcat	2760
tgccccaa	ggcatatgca	ctggacacgg	aggtggccgc	gtcgtgtggc	ggcgttggtc	2820
ttgtcggggt	aatggcgctg	actctgtcgc	catattacaa	gcgctatatc	agctggtgca	2880
tgtgtgtggc	tcagtatttt	ctgaccagag	tagaagcgca	actgcacgtg	tgggttcccc	2940
ccctcaacgt	ccgggggggg	cgcgatgccg	tcactttact	catgtgtgta	gtacacccga	3000
ccctggtatt	tgacatcacc	aaactactcc	tggccatctt	cggacccctt	tggattcttc	3060
aagccagttt	gcttaaagtc	ccctacttct	tgccggttca	aggccttctc	cggatctgcg	3120
cgctagcgcg	gaagatagcc	ggaggtcatt	acgtgcaaat	ggccatcatc	aagttagggg	3180
cgcttactgg	cacctatgtg	tataaccatc	tcacccctct	tcgagactgg	gcgcacaacg	3240
gcctgcgaga	tctggccgtg	gctgtggaac	cagtctgtct	ctcccgaatg	gagaccaagc	3300
tcatacacgtg	gggggcagat	accgccgcgt	gcggtgacat	catcaacggc	ttgcccgctc	3360
ctgcccgtag	ggggccaggag	atactgcttg	ggccagccga	cggaatgggt	tccaaggggt	3420
ggaggttgct	ggcgcccatc	acggcgtagc	ccagcgagac	gagaggcctc	ctagggtgta	3480
taatcaccag	cctgactggc	cgggacaaaa	accaagtggg	gggtgaggtc	cagatcgtgt	3540
caactgctac	ccaaaccttc	ctggcaacgt	gcataaatgg	ggtatgctgg	actgtctacc	3600
acggggccgg	aacgaggacc	atcgcatcac	ccaagggctc	tgtcatccag	atgtatacca	3660
atgtggacca	agaccttggt	ggctggcccc	ctcctcaagg	ttcccgtctc	ttgacaccct	3720
gtacctgcgg	ctcctcgagc	ctttacctgg	tcacgaggca	cgccgatgtc	attcccgtgc	3780
gcccgcgagg	tgtatgcagg	ggtagcctgc	tttcgccccg	gcccatttcc	tacttgaaag	3840
gctcctcggg	gggtccgctg	ttgtgccccg	cgggacacgc	cgtgggccta	ttcagggccg	3900
cggtgtgcac	ccgtggagtg	gctaaagcgg	tggactttat	ccctgtggag	aacctagggg	3960

2053293_1.TXT

caaccatgag	atccccggtg	ttcacggaca	actcctctcc	accagcagtg	ccccagagct	4020
tccaggtggc	ccacctgcat	gctcccaccg	gcagcggtaa	gagcaccaag	gtcccggctg	4080
cgtacgcagc	ccagggctac	aaggtgttgg	tgctcaaccc	ctctgttgct	gcaacgctgg	4140
gctttggtgc	ttacatgtcc	aaggccccatg	gggttgatcc	taatatacag	accgggggtga	4200
gaacaattac	cactggcagc	cccatcacgt	actccaccta	cggcaagttc	cttgccgacg	4260
gcgggtgctc	aggaggtgct	tatgacataa	taattttgtga	cgagtgccac	tccacggatg	4320
ccacatccat	cttgggcatac	ggcactgtcc	ttgaccaagc	agagactgcg	ggggcgagac	4380
tggttgtgct	cgccactgct	acccctccgg	gctccgtcac	tgtgtcccat	cctaacatcg	4440
aggaggttgc	tctgtccacc	accggagaga	tcccccttta	cggcaaggct	atccccctcg	4500
aggtgatcaa	ggggggaaga	catctcatct	tctgccactc	aaagaagaag	tgcgacgagc	4560
tcgccgcgaa	gctggtcgca	ttgggcatca	atgccgtggc	ctactaccgc	ggtcttgacg	4620
tgtctgtcat	cccgaccagc	ggcgtatgtg	tcgtcgtgtc	gaccgatgct	ctcatgactg	4680
gctttaccgg	cgacttcgac	tctgtgatag	actgcaacac	gtgtgtcact	cagacagtcg	4740
atttcagcct	tgaccctacc	tttaccattg	agacaaccac	gctccccag	gatgctgtct	4800
ccaggactca	acgccggggc	aggactggca	gggggaagcc	aggcatctat	agattttgtg	4860
caccggggga	gcgcccctcc	ggcatgttcg	actcgtccgt	cctctgtgag	tgctatgacg	4920
cgggctgtgc	ttggtatgag	ctcacgccc	ccgagactac	agttaggcta	cgagcgtaca	4980
tgaacacccc	ggggcttccc	gtgtgccagg	accatcttga	attttgggag	ggcgtcttta	5040
cgggcctcac	tcatatagat	gcccactttt	tatcccagac	aaagcagagt	ggggagaaact	5100
ttccttacct	ggtagcgtac	caagccaccg	tgtgcgctag	ggctcaagcc	cctcccccat	5160
cgtgggacca	gagtgtggaag	tggttgatcc	gccttaaac	caccctccat	gggccaacac	5220
ccctgcata	cagattgggc	gctgttcaga	atgaagtcac	cctgacgcac	ccaatcacca	5280
aatacatcat	gacatgcatg	tcggccgacc	tggaggtcgt	cacgagcacc	tgggtgctcg	5340
ttggcggcgt	cctggctgct	ctggccgcgt	attgcctgtc	aacaggctgc	gtggtcatag	5400
tgggcaggat	cgtcttgtcc	gggaagccgg	caattatacc	tgacagggag	gttctctacc	5460
aggagttcga	tgagatggaa	gagtgtcttc	agcacttacc	gtacatcgag	caagggatga	5520
tgctcgctga	gcagttcaag	cagaaggccc	tcggcctcct	gcagaccgcg	tcccgccatg	5580
cagaggttat	caccctgtct	gtccagacca	actggcagaa	actcgaggct	ttttgggcga	5640
agcacatgtg	gaatttcatac	agtgggatac	aatacttggc	gggcctgtca	acgctgcctg	5700
gtaaccccg	cattgcttca	ttgatggctt	ttacagctgc	cgtcaccagc	ccactaacca	5760
ctggccaaac	cctcctcttc	aacatatttg	gggggtgggt	ggctgcccag	ctcgccgccc	5820
ccggtgccgc	tactgccttt	gtgggtgctg	gcctagctgg	cgccgccatc	ggcagcgttg	5880
gactggggaa	ggtcctcgctg	gacattcttg	cagggtatgg	cgcgggcgtg	gcgggagctc	5940
ttgtagcatt	caagatcatg	agcggtgagg	tccccctcac	ggaggacctg	gtcaatctgc	6000
tgccccccat	cctctcgctt	ggagcccttg	tagtcggtgt	ggtctgcgca	gcaatactgc	6060
gccggcacgt	tggccccggc	gagggggcag	tgcaatggat	gaaccggcta	atagccttcg	6120
cctcccgggg	gaaccatgtt	tccccacgc	actacgtgcc	ggagagcgat	gcagccgccc	6180
gcgtcacctg	catactcagc	agcctcactg	taaccagct	cctgaggcga	ctgcgcctg	6240
ggataagctc	ggagtgtacc	actccatgct	ccggttcctg	gctaagggac	atctgggact	6300
ggatatgcga	ggtgctgagc	gactttaaga	cctggctgaa	agccaagctc	atgccacaac	6360
tgccctggat	tccctttgtg	tcctgccagc	gcgggtatag	gggggtctgg	cgaggagacg	6420
gcattatgca	cactcgctgc	cactgtggag	ctgagatcac	tggacatgtc	aaaaacggga	6480
cgataggat	cgtcggctct	aggacctgca	ggaacatgtg	gagtgggacg	ttccccatta	6540
acgcctacac	cacgggcccc	tgtactcccc	ttcttcgccc	gaactataag	ttcgcgctgt	6600
ggaggggtgtc	tgacaggaa	tacgtggaga	taaggcgggt	gggggacttc	cactacgtat	6660
cgggtatgac	tactgacaat	cttaaatgcc	cgtgccagat	cccatcgccc	gaatttttca	6720
cagaattgga	cgggggtgcg	ctacacaggt	ttgcgcccc	ttgcaagccc	ttgctgcggg	6780
aggaggtatc	attcagagta	ggactccacg	agtaaccgg	ggggctgcaa	ttaccttgcg	6840
agcccgaaac	ggacgtagcc	gtgttgacgt	ccatgctcac	tgatccctcc	catataacag	6900
cagaggcggc	cgggagaagg	ttggcgagag	ggtcaccccc	ttctatggcc	agctcctcgg	6960
ctagccagct	gtccgctcca	tctctcaagg	caacttgcac	cgccaaccat	gactccccctg	7020
acgccgagct	catagaggct	aacctcctgt	ggaggcagga	gatgggcggc	aacatcacca	7080
gggttgagtc	agagaacaaa	gtggtgattc	tggactcctt	cgatccgctt	gtggcagagg	7140
aggatgagcg	ggaggtctcc	gtacctgcag	aaattctgcg	gaagtctcgg	agatttcgcc	7200
gggcccgtcc	cgtctgggcg	cggccggact	acaaccccc	gctagttagag	acgtggaaaa	7260
agcctgacta	cgaaccacct	gtggtccatg	gctgcccgtc	accacctcca	cggctcccctc	7320
ctgtgcctcc	gcctcgga	aagcgtacgg	tggtcctcac	cgaatcaacc	ctatctactg	7380
ccttggccga	gcttgccacc	aaaagttttg	gcagctcctc	aacttccggc	attacgggcg	7440
acaatacgac	aaatctctct	gagcccgccc	cttctggctg	cccccccgac	tccgacgttg	7500
agtcctattc	ttccatgccc	cccctggagg	gggagcctgg	ggatccggat	ctcagcgacg	7560
ggtcatggtc	gacggtcagt	agtggggccg	acacggaaga	tgctcgtgtc	tgctcaatgt	7620
cttatttctg	gacaggcgca	ctcgtcacc	cgtgcgctgc	ggaagaacaa	aaactgccc	7680
tcaacgcact	gagcaactcg	ttgctacgcc	atcacaatct	ggtgtatttc	accacttcac	7740

2053293_1.TXT

```
gcagtgtcttg ccaaaggcag aagaaagtca cttttgacag actgcaagtt ctggacagcc 7800
attaccagga cgtgtctcaag gaggtcaaag cagcggcgtc aaaagtgaag gctaacttgc 7860
tatccgtaga ggaagcttgc agcctgacgc cccacattc agccaaatcc aagtttggct 7920
atggggcaaa agacgtccgt tgccatgcc aagaggcgt agcccacatc aactccgtgt 7980
ggaaagacct tctggaagac agtgaacac caatagacac taccatcatg gccaagaacg 8040
aggttttctg cgttcagcct gagaaggggg gtcgtaagcc agctcgtctc atcgtgttcc 8100
ccgacctggg cgtgcgcgtg tgcgagaaga tggccctgta cgacgtgggt agcaagctcc 8160
ccctggccgt gatgggaagc tcctacggat tccaatactc accaggacag cgggttgaat 8220
tcctcgtgca agcgtggaag tccaagaaga ccccgatggg gttctcgtat gatacccgct 8280
gttttgactc cacagtcact gagagcgaca tccgtacgga ggaggcaatt taccaatggt 8340
gtgacctgga cccccaagcc cgcgtggcca tcaagtcctt cactgagagg ctttatgttg 8400
ggggccctct taccaattca aggggggaaa actgcggcta ccgcaggtgc cgcgcgagcg 8460
gcgtagtgac aactagctgt ggtaacaccc tacttgcta catcaaggcc cgggcagcct 8520
gtcagaccgc agggctccag gactgcacca tgctcgtgtg tggcgacgac ttagtcgtta 8580
tctgtgaaag tgcgggggtc caggaggacg cggcgagcct gagagccttc acggaggcta 8640
tgaccaggta tctcgccccc cccggggacc cccacaacc agaatacgac ttggagctta 8700
taacatcatg ctcctccaac gtgtcagtcg cccacgacgg cgctggaaag aggttctact 8760
accttaccgg tgacctaca acccccctcg cgagagccgc gtgggagaca gcaagacaca 8820
ctccagtc aa ttcctggcta ggcaacataa tcatgtttgc cccacactg tgggcgagga 8880
tgatactgat gacctatttc tttagcgtcc tcatagccag ggatcagctt gaacaggctc 8940
ttaactgtga gatctacgga gcctgtact ccatagaacc actggatcta cctccaatca 9000
ttcaaagact ccatggcctc agcgcatttt cactccacag ttactctcca ggtgaaatca 9060
ataggggtggc cgcattgcctc agaaaacttg ggggtcccgcc cttgcgagct tggagacacc 9120
gggcccggag cgtccgcgtc aggttctgt ccagaggagg cagggtgtgt atatgtggca 9180
agtacctctt caactgggca gtaagaacaa agctcaaaact cactccaata gcgccgctg 9240
gccggctgga cttgtccggt tggttcacgg ctggctacag cgggggagac atttatcaca 9300
gcgtgtctca tgcccggccc cgctgtgtct ggttttgctt actcctgctc gctgcagggg 9360
taggcattcta cctcctcccc aaccgatgaa ggttggggta aacactccgg cctcttaagc 9420
catttctctgt tttttttttt tttttttttt tttttttctt tttttttttc tttcctttcc 9480
ttcttttttt cctttctttt tcccttcttt aatggtggct ccatcttagc cctagtcacg 9540
gctagctgtg aaaggtccgt gagccgcatg actgcagaga gtgctgatac tggcctctct 9600
gcagatcatg t 9611
```

<210> 8
 <211> 3015
 <212> PRT
 <213> Hepatitis C virus

<400> 8
 Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
 1 5 10 15
 Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25 30
 Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
 35 40 45
 Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50 55 60
 Ile Pro Lys Asp Arg Arg Ser Thr Gly Lys Ser Trp Gly Lys Pro Gly
 65 70 75 80
 Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Leu Gly Trp Ala Gly Trp
 85 90 95
 Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro
 100 105 110
 Arg His Arg Ser Arg Asn Val Gly Lys Val Ile Asp Thr Leu Thr Cys
 115 120 125
 Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Val Val Gly Ala Pro Leu
 130 135 140
 Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
 145 150 155 160
 Gly Val Asn Phe Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
 165 170 175
 Phe Leu Leu Ala Leu Leu Ser Cys Ile Thr Thr Pro Val Ser Ala Ala
 180 185 190

2053293_1.TXT

Glu	Val	Lys	Asn	Ile	Ser	Thr	Gly	Tyr	Met	Val	Thr	Asn	Asp	Cys	Thr
		195					200					205			
Asn	Asp	Ser	Ile	Thr	Trp	Gln	Leu	Gln	Ala	Ala	Val	Leu	His	Val	Pro
	210					215					220				
Gly	Cys	Val	Pro	Cys	Glu	Lys	Val	Gly	Asn	Ala	Ser	Gln	Cys	Trp	Ile
225					230					235					240
Pro	Val	Ser	Pro	Asn	Val	Ala	Val	Gln	Arg	Pro	Gly	Ala	Leu	Thr	Gln
				245					250					255	
Gly	Leu	Arg	Thr	His	Ile	Asp	Met	Val	Val	Met	Ser	Ala	Thr	Leu	Cys
			260					265					270		
Ser	Ala	Leu	Tyr	Val	Gly	Asp	Leu	Cys	Gly	Gly	Val	Met	Leu	Ala	Ala
		275					280					285			
Gln	Met	Phe	Ile	Val	Ser	Pro	Gln	His	His	Trp	Phe	Val	Gln	Asp	Cys
	290					295					300				
Asn	Cys	Ser	Ile	Tyr	Pro	Gly	Thr	Ile	Thr	Gly	His	Arg	Met	Ala	Trp
305					310					315					320
Asp	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Ala	Thr	Met	Ile	Leu	Ala	Tyr
				325					330					335	
Ala	Met	Arg	Val	Pro	Glu	Val	Ile	Ile	Asp	Ile	Ile	Ser	Gly	Ala	His
			340					345					350		
Trp	Gly	Val	Met	Phe	Gly	Leu	Ala	Tyr	Phe	Ser	Met	Gln	Gly	Ala	Trp
		355					360					365			
Ala	Lys	Val	Val	Val	Ile	Leu	Leu	Leu	Ala	Ala	Gly	Val	Asp	Ala	Arg
	370					375					380				
Thr	His	Thr	Val	Gly	Gly	Ser	Ala	Ala	Gln	Thr	Thr	Gly	Arg	Leu	Thr
385					390					395					400
Ser	Leu	Phe	Asp	Met	Gly	Pro	Arg	Gln	Lys	Ile	Gln	Leu	Val	Asn	Thr
				405					410					415	
Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	Ser
			420					425					430		
Leu	His	Thr	Gly	Phe	Ile	Ala	Ser	Leu	Phe	Tyr	Thr	His	Ser	Phe	Asn
		435					440					445			
Ser	Ser	Gly	Cys	Pro	Glu	Arg	Met	Ser	Ala	Cys	Arg	Ser	Ile	Glu	Ala
	450					455					460				
Phe	Arg	Val	Gly	Trp	Gly	Ala	Leu	Gln	Tyr	Glu	Asp	Asn	Val	Thr	Asn
465					470					475					480
Pro	Glu	Asp	Met	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Pro	Pro	Arg	Gln	Cys
				485					490					495	
Gly	Val	Val	Ser	Ala	Lys	Thr	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr
			500					505					510		
Pro	Ser	Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Leu	Gly	Ala	Pro	Thr
		515					520					525			
Tyr	Thr	Trp	Gly	Glu	Asn	Glu	Thr	Asp	Val	Phe	Leu	Leu	Asn	Ser	Thr
	530					535					540				
Arg	Pro	Pro	Leu	Gly	Ser	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Ser
545					550					555					560
Gly	Tyr	Thr	Lys	Thr	Cys	Gly	Ala	Pro	Pro	Cys	Arg	Thr	Arg	Ala	Asp
				565					570					575	
Phe	Asn	Ala	Ser	Thr	Asp	Leu	Leu	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys
			580					585					590		
His	Pro	Asp	Thr	Thr	Tyr	Leu	Lys	Cys	Gly	Ser	Gly	Pro	Trp	Leu	Thr
		595					600					605			
Pro	Arg	Cys	Leu	Ile	Asp	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys
	610					615					620				
Thr	Val	Asn	Tyr	Thr	Ile	Phe	Lys	Ile	Arg	Met	Tyr	Val	Gly	Gly	Val
625					630					635					640
Glu	His	Arg	Leu	Thr	Ala	Ala	Cys	Asn	Phe	Thr	Arg	Gly	Asp	Arg	Cys
				645					650					655	
Asn	Leu	Glu	Asp	Arg	Asp	Arg	Ser	Gln	Leu	Ser	Pro	Leu	Leu	His	Ser
			660					665					670		
Thr	Thr	Glu	Trp	Ala	Ile	Leu	Pro	Cys	Ser	Tyr	Ser	Asp	Leu	Pro	Ala
		675					680					685			
Leu	Ser	Thr	Gly	Leu	Leu	His	Leu	His	Gln	Asn	Ile	Val	Asp	Val	Gln

	690					695					700				
Phe 705	Met	Tyr	Gly	Leu	Ser 710	Pro	Ala	Leu	Thr	Lys 715	Tyr	Ile	Val	Arg	Trp 720
Glu	Trp	Val	Ile	Leu 725	Leu	Phe	Leu	Leu	Leu 730	Ala	Asp	Ala	Arg	Val 735	Cys
Ala	Cys	Leu	Trp 740	Met	Leu	Ile	Leu	Leu 745	Gly	Gln	Ala	Glu	Ala 750	Ala	Leu
Glu	Lys	Leu 755	Val	Ile	Leu	His	Ala 760	Ala	Ser	Ala	Ala	Ser 765	Cys	Asn	Gly
Phe	Leu 770	Tyr	Phe	Val	Ile	Phe 775	Phe	Val	Ala	Ala	Trp 780	Tyr	Ile	Lys	Gly
Arg 785	Val	Val	Pro	Leu	Ala 790	Thr	Tyr	Ser	Leu	Thr 795	Gly	Leu	Trp	Ser	Phe 800
Ser	Leu	Leu	Leu	Leu 805	Ala	Leu	Pro	Gln	Gln 810	Ala	Tyr	Ala	Leu	Asp 815	Thr
Glu	Val	Ala	Ala 820	Ser	Cys	Gly	Gly	Val 825	Val	Leu	Val	Gly	Leu 830	Met	Ala
Leu	Thr	Leu 835	Ser	Pro	Tyr	Tyr	Lys 840	Arg	Tyr	Ile	Ser	Trp 845	Cys	Met	Trp
Trp	Leu 850	Gln	Tyr	Phe	Leu	Thr 855	Arg	Val	Glu	Ala	Gln 860	Leu	His	Val	Trp
Val 865	Pro	Pro	Leu	Asn	Val 870	Arg	Gly	Gly	Arg	Asp 875	Ala	Val	Ile	Leu	Leu 880
Met	Cys	Val	Val	His 885	Pro	Thr	Leu	Val	Phe 890	Asp	Ile	Thr	Lys	Leu 895	Leu
Leu	Ala	Ile	Phe 900	Gly	Pro	Leu	Trp	Ile 905	Leu	Gln	Ala	Ser	Leu 910	Leu	Lys
Val	Pro	Tyr 915	Phe	Val	Arg	Val	Gln 920	Gly	Leu	Leu	Arg	Ile 925	Cys	Ala	Leu
Ala	Arg 930	Lys	Ile	Ala	Gly	Gly 935	His	Tyr	Val	Gln	Met 940	Ala	Ile	Ile	Lys
Leu 945	Gly	Ala	Leu	Thr	Gly 950	Thr	Tyr	Val	Tyr	Asn 955	His	Leu	Thr	Pro	Leu 960
Arg	Asp	Trp	Ala	His 965	Asn	Gly	Leu	Arg	Asp 970	Leu	Ala	Val	Ala	Val 975	Glu
Pro	Val	Val	Phe 980	Ser	Arg	Met	Glu	Thr 985	Lys	Leu	Ile	Thr	Trp 990	Gly	Ala
Asp	Thr	Ala 995	Ala	Cys	Gly	Asp	Ile 1000	Ile	Asn	Gly	Leu	Pro 1005	Val	Ser	Ala
Arg	Arg 1010	Gly	Gln	Glu	Ile	Leu 1015	Leu	Gly	Pro	Ala	Asp 1020	Gly	Met	Val	Ser
Lys 1025	Gly	Trp	Arg	Leu	Leu 1030	Ala	Pro	Ile	Thr	Ala 1035	Tyr	Ala	Gln	Gln	Thr 1040
Arg	Gly	Leu	Leu	Gly 1045	Cys	Ile	Ile	Thr	Ser 1050	Leu	Thr	Gly	Arg	Asp 1055	Lys
Asn	Gln	Val	Glu 1060	Gly	Glu	Val	Gln	Ile 1065	Val	Ser	Thr	Ala	Thr 1070	Gln	Thr
Phe	Leu	Ala 1075	Thr	Cys	Ile	Asn	Gly 1080	Val	Cys	Trp	Thr	Val 1085	Tyr	His	Gly
Ala	Gly 1090	Thr	Arg	Thr	Ile	Ala 1095	Ser	Pro	Lys	Gly	Pro 1100	Val	Ile	Gln	Met
Tyr 1105	Thr	Asn	Val	Asp	Gln 1110	Asp	Leu	Val	Gly	Trp 1115	Pro	Ala	Pro	Gln	Gly 1120
Ser	Arg	Ser	Leu	Thr 1125	Pro	Cys	Thr	Cys	Gly 1130	Ser	Ser	Asp	Leu	Tyr 1135	Leu
Val	Thr	Arg	His 1140	Ala	Asp	Val	Ile	Pro 1145	Val	Arg	Arg	Gly 1150	Asp	Ser	
Arg	Gly	Ser 1155	Leu	Leu	Ser	Pro	Arg 1160	Pro	Ile	Ser	Tyr	Leu 1165	Lys	Gly	Ser
Ser	Gly 1170	Gly	Pro	Leu	Leu	Cys 1175	Pro	Ala	Gly	His	Ala 1180	Val	Gly	Leu	Phe
Arg 1185	Ala	Ala	Val	Cys	Thr 1190	Arg	Gly	Val	Ala	Lys 1195	Ala	Val	Asp	Phe	Ile 1200

2053293_1.TXT

Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp
 1205 1210 1215
 Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu
 1220 1225 1230
 His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr
 1235 1240 1245
 Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala
 1250 1255 1260
 Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp Pro
 1265 1270 1275 1280
 Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr
 1285 1290 1295
 Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly
 1300 1305 1310
 Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala Thr
 1315 1320 1325
 Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly
 1330 1335 1340
 Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr
 1345 1350 1355 1360
 Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly Glu
 1365 1370 1375
 Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly Gly
 1380 1385 1390
 Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala
 1395 1400 1405
 Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly
 1410 1415 1420
 Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val Val Ser
 1425 1430 1435 1440
 Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile
 1445 1450 1455
 Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro
 1460 1465 1470
 Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val Ser Arg
 1475 1480 1485
 Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg
 1490 1495 1500
 Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val
 1505 1510 1515 1520
 Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro
 1525 1530 1535
 Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu
 1540 1545 1550
 Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly
 1555 1560 1565
 Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly
 1570 1575 1580
 Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg
 1585 1590 1595 1600
 Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile
 1605 1610 1615
 Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu
 1620 1625 1630
 Gly Ala Val Gln Asn Glu Val Thr Leu Thr His Pro Ile Thr Lys Tyr
 1635 1640 1645
 Ile Met Thr Cys Met Ser Ala Asp Leu Glu Val Val Thr Ser Thr Trp
 1650 1655 1660
 Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Tyr Cys Leu Ser
 1665 1670 1675 1680
 Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro
 1685 1690 1695
 Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met

2053293_1.TXT

1700 1705 1710
 Glu Glu Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu
 1715 1720 1725
 Ala Glu Gln Phe Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala Ser
 1730 1735 1740
 Arg His Ala Glu Val Ile Thr Pro Ala Val Gln Thr Asn Trp Gln Lys
 1745 1750 1755 1760
 Leu Glu Val Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile
 1765 1770 1775
 Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Ile Ala
 1780 1785 1790
 Ser Leu Met Ala Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly
 1795 1800 1805
 Gln Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu
 1810 1815 1820
 Ala Ala Pro Gly Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly
 1825 1830 1835 1840
 Ala Ala Ile Gly Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu
 1845 1850 1855
 Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
 1860 1865 1870
 Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
 1875 1880 1885
 Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
 1890 1895 1900
 Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 1905 1910 1915 1920
 Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
 1925 1930 1935
 His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu
 1940 1945 1950
 Ser Ser Leu Thr Val Thr Gln Leu Arg Arg Leu His Gln Trp Ile
 1955 1960 1965
 Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
 1970 1975 1980
 Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
 1985 1990 1995 2000
 Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln
 2005 2010 2015
 Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg
 2020 2025 2030
 Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met
 2035 2040 2045
 Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe
 2050 2055 2060
 Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro
 2065 2070 2075 2080
 Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu
 2085 2090 2095
 Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp
 2100 2105 2110
 Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu
 2115 2120 2125
 Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu
 2130 2135 2140
 Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val
 2145 2150 2155 2160
 Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr
 2165 2170 2175
 Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg
 2180 2185 2190
 Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser
 2195 2200 2205

2053293_1.TXT

Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp
 2210 2215 2220
 Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu
 2225 2230 2235 2240
 Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys Val Val Ile
 2245 2250 2255
 Leu Asp Ser Phe Asp Pro Leu Val Ala Glu Glu Asp Glu Arg Glu Val
 2260 2265 2270
 Ser Val Pro Ala Glu Ile Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala
 2275 2280 2285
 Leu Pro Val Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr
 2290 2295 2300
 Trp Lys Lys Pro Asp Tyr Glu Pro Pro Val Val His Gly Cys Pro Leu
 2305 2310 2315 2320
 Pro Pro Pro Arg Ser Pro Pro Val Pro Pro Arg Lys Lys Arg Thr
 2325 2330 2335
 Val Val Leu Thr Glu Ser Thr Leu Ser Thr Ala Leu Ala Glu Leu Ala
 2340 2345 2350
 Thr Lys Ser Phe Gly Ser Ser Ser Thr Ser Gly Ile Thr Gly Asp Asn
 2355 2360 2365
 Thr Thr Thr Ser Ser Glu Pro Ala Pro Ser Gly Cys Pro Pro Asp Ser
 2370 2375 2380
 Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly
 2385 2390 2395 2400
 Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser Ser Gly Ala
 2405 2410 2415
 Asp Thr Glu Asp Val Val Cys Cys Ser Met Ser Tyr Ser Trp Thr Gly
 2420 2425 2430
 Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys Leu Pro Ile Asn
 2435 2440 2445
 Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr Ser Thr
 2450 2455 2460
 Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val Thr Phe Asp Arg
 2465 2470 2475 2480
 Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys
 2485 2490 2495
 Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala
 2500 2505 2510
 Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly
 2515 2520 2525
 Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn
 2530 2535 2540
 Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr
 2545 2550 2555 2560
 Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly
 2565 2570 2575
 Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg
 2580 2585 2590
 Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu
 2595 2600 2605
 Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg
 2610 2615 2620
 Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly
 2625 2630 2635 2640
 Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp
 2645 2650 2655
 Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln
 2660 2665 2670
 Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly
 2675 2680 2685
 Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg
 2690 2695 2700
 Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr

2053293_1.TXT

2705		2710		2715		2720
Ile Lys Ala Arg	Ala Ala Cys Arg	Ala Ala Gly Leu	Gln Asp Cys Thr			
	2725		2730		2735	
Met Leu Val Cys	Gly Asp Asp Leu	Val Val Ile Cys	Glu Ser Ala Gly			
	2740		2745		2750	
Val Gln Glu Asp	Ala Ala Ser Leu	Arg Ala Phe Thr	Glu Ala Met Thr			
	2755		2760		2765	
Arg Tyr Ser Ala	Pro Pro Gly Asp	Pro Pro Gln Pro	Glu Tyr Asp Leu			
	2770		2775		2780	
Glu Leu Ile Thr	Ser Cys Ser Ser	Asn Val Ser Val	Ala His Asp Gly			
2785		2790		2795		2800
Ala Gly Lys Arg	Val Tyr Tyr Leu	Thr Arg Asp Pro	Thr Thr Pro Leu			
	2805		2810		2815	
Ala Arg Ala Ala	Trp Glu Thr Ala	Arg His Thr Pro	Val Asn Ser Trp			
	2820		2825		2830	
Leu Gly Asn Ile	Ile Met Phe Ala	Pro Thr Leu Trp	Ala Arg Met Ile			
	2835		2840		2845	
Leu Met Thr His	Phe Phe Ser Val	Leu Ile Ala Arg	Asp Gln Leu Glu			
	2850		2855		2860	
Gln Ala Leu Asn	Cys Glu Ile Tyr	Gly Ala Cys Tyr	Ser Ile Glu Pro			
2865		2870		2875		2880
Leu Asp Leu Pro	Pro Ile Ile Gln	Arg Leu His Gly	Leu Ser Ala Phe			
	2885		2890		2895	
Ser Leu His Ser	Tyr Ser Pro Gly	Glu Ile Asn Arg	Val Ala Ala Cys			
	2900		2905		2910	
Leu Arg Lys Leu	Gly Val Pro Pro	Leu Arg Ala Trp	Arg His Arg Ala			
	2915		2920		2925	
Arg Ser Val Arg	Ala Arg Leu Leu	Ser Arg Gly Gly	Arg Ala Ala Ile			
	2930		2935		2940	
Cys Gly Lys Tyr	Leu Phe Asn Trp	Ala Val Arg Thr	Lys Leu Lys Leu			
2945		2950		2955		2960
Thr Pro Ile Ala	Ala Gly Arg Leu	Asp Leu Ser Gly	Trp Phe Thr			
	2965		2970		2975	
Ala Gly Tyr Ser	Gly Gly Asp Ile	Tyr His Ser Val	Ser His Ala Arg			
	2980		2985		2990	
Pro Arg Trp Phe	Trp Phe Cys Leu	Leu Leu Leu Ala	Ala Gly Val Gly			
	2995		3000		3005	
Ile Tyr Leu Leu	Pro Asn Arg					
3010		3015				

<210> 9
 <211> 9611
 <212> DNA
 <213> Hepatitis C virus

<400> 9

gccagcccc	tgatgggggc	gacactccac	catgaatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtgggtctg	cgaaccgggt	gagtacaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gataaaccgg	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcaagactgc	tagccgagta	gtgttgggtc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcga	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcaca	aatcctaacc	360
ctcaaagaaa	aacaaaaaga	aacaccaacc	gtcgccaca	agacgttaag	tttcggggcg	420
gcggccagat	cggtggcgga	gtatacttgt	tgcgcgcgag	gggccccagg	ttgggtgtgc	480
gcgcgacaag	gaagacttcg	gagcgggtccc	agccacgtgg	aaggcgccag	cccatcccta	540
aagatcgggc	ctccactggc	aaatcctggg	gaaaaccagg	atacccctgg	cccctatacg	600
ggaatgaggg	actcggctgg	gcaggatggc	tcctgtcccc	ccgaggttcc	cgtccctctt	660
ggggcccaa	tgacccccgg	cataggtcgc	gcaacgtggg	taaggtcatc	gataccctaa	720
cgtgcggctt	tgccgacctc	atggggtaca	tccctgtcgt	gggcgccccg	ctcggcgggc	780
tcgccagagc	tctcgcgcac	ggcgtgagag	tcctggagga	cgggggtta	tttgcaacag	840
ggaacttacc	cggttgctcc	ttttctatct	tcttgctggc	cctgctgtcc	tgcataacca	900
ccccggtctc	cgctgccgaa	gtgaagaaca	tcagtaccgg	ctacatggtg	actaacgact	960

2053293_1.TXT

gcaccaatga	cagcattacc	tggcagctcc	aggctgctgt	cctccacgtc	cccgggtgcg	1020
tcccgtgcga	gaaagtgggg	aatgcattct	agtgtggtg	accggtctca	ccgaatgtgg	1080
ccgtgcagcg	gccccggcgc	ctcacgcagg	gcttgccggac	gcacatcgac	atggttgtga	1140
tgtccgccac	gctctgtctt	gccctctacg	tgggggacct	ctgctggtgg	gtgatgtctg	1200
cagcccaaat	gttcattgtc	tcgccgcagc	accactgggt	tgtccaagac	tgcaattgct	1260
ccatctaccc	tggtaccatc	actggacacc	gcatggcatg	ggacatgatg	atgaactggg	1320
cgccacgggc	taccatgatc	ttggcgtacg	cgatgcgtgt	ccccgaggtc	attatagaca	1380
tcattagcgg	ggctcattgg	ggcgtcatgt	tcggcttggc	ctacttctct	atgcagggag	1440
cgtgggcgaa	agtcgttgtc	atccttctgt	tggccgcccg	ggtggacgcg	cgcacccata	1500
ctgttggggg	ttctgcccgc	cagaccaccg	ggcgccctac	cagcttattt	gacatggggc	1560
ccaggcagaa	aatccagctc	gttaacacca	atggcagctg	gcacatcaac	cgaccgccc	1620
tgaactgcaa	tgactccttg	cacaccggct	ttatcgcgtc	tctgttctac	acccacagct	1680
tcaactcgtc	aggatgtccc	gaacgcattg	ccgcctgccc	cagtatcgag	gccttccggg	1740
tgggatgggg	cgccttgcaa	tatgaggata	atgtcaccaa	tccagaggat	atgagaccct	1800
attgctggca	ctaccaccca	aggcagtggt	gcgtggtctc	cgcaagact	gtgtgtggcc	1860
cagtgtactg	tttccccccc	agcccagtg	tagtgggcac	gaccgacagg	cttggagcgc	1920
ccacttacac	gtggggggag	aatgagacag	atgtcttctt	attgaacagc	actcgaccac	1980
cgctgggggt	atggttcggc	tgacgtgga	tgaactcttc	tggctacacc	aagacttgcg	2040
gcgcaccacc	ctgccgtact	agagctgact	tcaacgccag	cacggacctg	ttgtgcccc	2100
cggactgttt	taggaagcat	cctgatacca	cttacctcaa	atgcggctct	gggcccctgg	2160
tcacgccaa	gtgcctgatc	gactacccct	acaggctctg	gcattacccc	tgacagttta	2220
actataccat	gttcaaaata	aggatgtatg	tgggaggggt	tgagcacagg	ctcacggctg	2280
catgcaattt	cactcgtggg	gatcgttgca	acttggagga	cagagacaga	agtcaactgt	2340
ctcctttgtt	gcactccacc	acggaatggg	ccattttacc	ttgctcttac	tcggacctgc	2400
ccgccttggt	gactgggtct	ctccacctcc	acaaaaacat	cgtggacgta	caattcatgt	2460
atggcctatc	acctgcccct	acaaaataca	tcgtccgatg	ggagtgggta	atactcttat	2520
tcctgtctct	agcggacgcc	agggtttgcg	cctgtctatg	gatgtctcat	ttgttggggc	2580
aggccgaagc	agctttggag	aacctcgtaa	tactcaatgc	agcatccctg	gccgggacgc	2640
acggctctgt	gtccttctct	gtgttcttct	gctttgcgtg	gtatctgaag	ggtaggtggg	2700
tgccccggag	ggtctacgcc	ctctacggga	tgtggcctct	cctcctgctc	ctgctggcgt	2760
tgccctcagc	ggcatatgca	ctggacacgg	aggtggccgc	gtcgtgtggc	ggcgttgttc	2820
ttgtcggggt	aatggcgctg	actctgtcgc	catattacaa	gcgctatatc	agctgggtga	2880
ttgtgtgggt	tcagtatttt	ctgaccagag	tagaagcgca	actgcacgtg	tgggttcccc	2940
ccctcaacgt	ccgggggggg	cgcgatgccg	tcactcttact	catgtgtgta	gtacaccgca	3000
ccctgggtatt	tgacatcacc	aaactactcc	tggccatctt	cggacccctt	tggattcttc	3060
aagccagttt	gcttaaagtc	ccctacttct	tgcgcgttca	aggccttctc	cggatctgcg	3120
cgctagcgcg	gaagatagcc	ggaggtcatt	acgtgcaa	ggccatcatc	aagttagggg	3180
cgcttacttg	cacctatgtg	tataaccatc	tcacccctct	tcgagactgg	gcgcacaacg	3240
gcctgtgcag	tctgtggaac	gctgtggaac	cagtcgtctt	ctcccgaatg	gagaccaagc	3300
tcatacagtg	gggggcagat	accgcccgtg	gcggtgacat	catcaacggc	ttgcccgtct	3360
ctgcccgtag	gggcccagg	atactgcttg	ggccagccga	cggaatggtc	tccaaggggt	3420
ggaggttgct	ggcgcccatc	acggcgtacg	cccagcagac	gagaggcctc	ctaggggtga	3480
taatcaccag	cctgactggc	cgggacaaaa	accaagtggg	gggtgaggtc	cagatcgtgt	3540
caactgtctac	ccaaaccttc	ctggcaacgt	ccaatgaatg	ggtagtctgg	actgtctacc	3600
acggggccgg	aacgaggacc	atcgcatcac	cgaagggtcc	tgtcatccag	atgtatacca	3660
atgtggacca	agaccttgtg	ggctggcccc	ctcctcaagg	ttcccgtctc	ttgacaccct	3720
gtacctgcgg	ctcctcggac	ctttacctgg	tcacgaggca	cgccgatgtc	attcccgtgc	3780
gccggcgagg	tgatagcagg	ggtagcctgc	tttcgccccg	gcccatttcc	tacttgaag	3840
gctcctcggg	gggtccgctg	ttgtgccccg	cgggacacgc	cgtgggccta	ttcagggcgc	3900
cggtgtgcac	ccgtggagtg	gctaaagcgg	tggactttat	ccctgtggag	aacctaggga	3960
caaccatgag	atccccggtg	ttcacggaca	actcctctcc	accagcagtg	ccccagagct	4020
tccaggtggc	ccacctgcat	gctcccaccg	gcagcggtaa	gagcaccaag	gtcccggctg	4080
cgtacgcagc	ccagggtctac	aagggtgttg	tgctcaaccc	ctctgttgc	gcaacgtgga	4140
gctttggtgc	ttacatgtcc	aaggcccatc	gggttgatcc	taatatcagg	accgggggtg	4200
gaacaattac	cactggcagc	cccatacgt	actccaccta	cggcaagttc	cttgccgacg	4260
gcgggtgctc	aggaggtgct	tatgacataa	taatttgtga	cgagtggcac	tccacggatg	4320
ccacatccat	cttgggcctc	ggcactgtcc	ttgaccaagc	agagactgcg	ggggcgagac	4380
tggttgtgct	cgccactgct	acccctccgg	gctccgtcac	tgtgtcccat	cctaaccatc	4440
aggaggttgc	tctgtccacc	accggagaga	tcccccttta	cggcaaggct	atccccctcg	4500
aggtgatcaa	ggggggaaga	catctcatct	tctgccactc	aaagaagaag	tgcgacgagc	4560
tcgccgcgaa	gctggctcga	ttgggcatca	atggcgtggc	ctactaccgc	ggtcttgacg	4620
tgtctgtcat	cccagaccagc	ggcgtatgtg	tcgtcgtgtc	gaccgatgct	ctcatgactg	4680
gctttaccgg	cgacttcgac	tctgtgatag	actgcaacac	gtgtgtcact	cagacagctg	4740

2053293_1.TXT

atttcagcct	tgaccctacc	tttaccattg	agacaaccac	gctccccag	gatgctgtct	4800
ccaggactca	acgccggggc	aggactggca	gggggaagcc	aggcatctat	agatttgttg	4860
caccggggga	gcgccccctc	ggcatgttcg	actcgtccgt	cctctgtgag	tgctatgacg	4920
cgggctgtgc	ttggtatgag	ctcacgcccc	ccgagactac	agttaggcta	cgagcgtaca	4980
tgaacacccc	ggggcttccc	gtgtgccagg	accatcttga	attttgggag	ggcgtcttta	5040
cgggcctcac	tcatatagat	gccacttttt	tatcccagac	aaagcagagt	ggggagaact	5100
ttccttacct	ggtagcgtac	caagccaccg	tgtgcgctag	ggctcaagcc	cctcccccat	5160
cgtgggacca	gatgtggaag	tgtttgatcc	gccttaaacc	caccctccat	gggccaacac	5220
ccctgctata	cagactgggc	gctgttcaga	atgaagtcac	cctgacgcac	ccaatcacca	5280
aatacatcat	gacatgcatg	tcggccgcac	tggaggctcg	cacgagcacc	tggtgtctcg	5340
ttggcggcgt	cctggctgct	ctggccgcgt	attgcctgtc	aacaggctgc	gtggtcatag	5400
tgggcaggat	cgtcttgtcc	gggaagccgg	caattatacc	tgacagggag	gttctctacc	5460
aggagttcga	tgagatggaa	gagtgtcttc	agcacttacc	gtacatcgag	caagggatga	5520
tgctcgctga	gcagttcaag	cagaaggccc	tcggcctcct	gcagaccgag	tcccgcctatg	5580
cagaggttat	cacccctgct	gtccagacca	actggcagaa	actcgaggtc	ttttgggcga	5640
agcacatgtg	gaatttcac	agtgggatac	aatacttggc	gggcctgtca	acgctgcctg	5700
gtaacccccg	cattgcttca	ttgatggcct	ttacagctgc	cgtcaccagc	ccactaacca	5760
ctggccaaac	cctcctcttc	aacatatttg	gggggtgggt	ggctgcccag	ctcgccgccc	5820
ccggtgccgc	tactgccttt	gtgggtgctg	gcctagctgg	cgccgccatc	ggcagcggtg	5880
gactggggaa	ggtcctcgtg	gacattcttg	cagggatagg	cgcgggcgtg	gcgggagctc	5940
ttgtagcatt	caagatcatg	agcggtgagg	tccccctcac	ggaggacctg	gtcaatctgc	6000
tgcccccat	cctctgcct	ggagcccttg	tagtcgggtg	ggtctgcgca	gcaatactgc	6060
gccggcacgt	tggcccgggc	gagggggcag	tgcaatggat	gaaccggcta	atagccttcg	6120
cctccccggg	gaaccatgtt	tcccccacgc	actacgtgcc	ggagagcgat	gcagccgccc	6180
gcgtcactgc	catactcagc	agcctcactg	taaccagct	cctgaggcga	ctgcatcagt	6240
ggataagctc	ggagtgtacc	actccatgct	ccggttctctg	gctaagggac	atctgggact	6300
ggatatgcga	ggtgctgagc	gactttaaga	cctggctgaa	agccaagctc	atgccacaac	6360
tgcttgggat	tccctttgtg	tccctgccagc	gcgggtatag	gggggtctg	cgaggagacg	6420
gcattatgca	cactcgctgc	cactgtggag	ctgagatcac	tggacatgtc	aaaaacggga	6480
cgatgaggat	cgctcggtcct	aggacctgca	ggaacatgtg	gagtgggacg	ttccccatta	6540
acgcctacac	cacgggcccc	tgtactcccc	ttcctgcgcc	gaactataag	ttcgcgctgt	6600
ggaggggtgc	tgagaggaa	tacgtggaga	taaggcgggt	gggggacttc	cactacgtat	6660
cgggtatgac	ccttgacaat	cttaaatgcc	cggtccagat	cccatcgccc	gtaattttca	6720
cagaattgga	cggggtgcgc	ctacacaggt	ttgcgcccc	ttgcaagccc	ttgctgcggg	6780
aggaggtatc	attcagagta	ggactccacg	agtaccgggt	ggggctcgaa	ttaccttgcg	6840
agcccgaacc	ggacgtagcc	gtgttgacgt	ccatgctcac	tgatccctcc	catataacag	6900
cagaggcggc	cgggagaagg	ttggcgagag	ggtaaccccc	ttctatggcc	agctcctctg	6960
ctagccagct	gtccgctcca	tctctcaagg	caacttgcac	cgccaaccat	gactccccctg	7020
acgccagact	catagaggct	aacctcctgt	ggaggcagga	gatgggcggc	aacatcacca	7080
gggttgagtc	agagaacaaa	gtggtgattc	tggactcctt	cgatccgctt	gtggcagagg	7140
aggatgagcg	ggaggtctcc	gtacctgcag	aaattctgcg	gaagtctcgg	agattcgccc	7200
gggccctgcc	cgtctgggag	cggccggact	acaaccccc	gctagtagag	acgtggaaaa	7260
agcctgacta	cgaaccacct	gtggtccatg	tggtcccgt	accacctcca	cggctccctg	7320
ctgtgctacc	gcctcggaag	aagcgtacgg	gctgctctac	cgaatcaacc	ctatctactg	7380
ccttgccga	gcttgccacc	aaaagttttg	gcagctcctc	aacttcgggc	attacgggag	7440
acaatacgac	aacatcctct	gagcccgccc	cttctggctg	cccccccgac	tccgacgttg	7500
agtcctattc	ttccatgccc	cccctggagg	gggagcctgg	ggatccggat	ctcagcgacg	7560
ggtcatggtc	gacggctcagt	agtggggcgg	acacggaaga	tgctcgtgtc	tgctcaatgt	7620
cttattcctg	gacaggcgca	ctcgtcaccc	cgctgcgtgc	ggaagaacaa	aaactgcccc	7680
tcaacgcact	gagcaactcg	ttgctacgcc	atcacaatct	ggtgtattcc	accacttcac	7740
gcagtgtctg	ccaaaggcag	aagaaagtca	catttgacag	actgcaagtt	ctggacagcc	7800
attaccagga	cgtgctcaag	gaggtcaaa	cagcggcgtc	aaaagtgaag	gctaacttgc	7860
tatccgtaga	ggaagcttgc	agcctgacgc	ccccacattc	agccaaatcc	aagtttggct	7920
atggggcaaa	agacgtccgt	tgccatgcca	gaaaggccgt	agccccacatc	aactccgtgt	7980
ggaaagacct	tctggaagac	agtgtaacac	caatagacac	taccatcatg	gccaagaagc	8040
aggttttctg	cgttcagcct	gagaaggggg	gtcgtgaagc	agctcgtctc	atcgtgttcc	8100
ccgacctggg	cgtgcgcgtg	tgcgagaaga	tggccctgta	cgacgtgggt	agcaagctcc	8160
ccctggccgt	gatgggaagc	tcctacggat	tccaatactc	accaggacag	cgggttgaat	8220
tcctcgtgca	agcgtggaag	tccaagaaga	ccccgatggg	gttctcgtat	gatacccgct	8280
gttttgactc	cacagtcact	gagagcgaca	tccgtacgga	ggaggcaatt	taccaatgtt	8340
gtgacctgga	cccccaagcc	cgcgtggcca	tcaagtccct	cactgagagg	ctttatgttg	8400
ggggccctct	taccaattca	aggggggaaa	actgcggcta	ccgcaggtgc	cgcgcgagcg	8460
gcgtactgac	aactagctgt	ggtaacaccc	tcacttgcta	catcaaggcc	cgggcagcct	8520

2053293_1.TXT

```

gtcgcagccgc aggggtccag gactgcacca tgctcgtgtg tggcgacgac ttagtcgtta 8580
tctgtgaaag tgccgggggtc caggaggacg cggcgagcct gagagccttc acggaggcta 8640
tgaccaggta ctccgcccccc cccggggacc cccacacacc agaatacgac ttggagctta 8700
taacatcatg ctcctccaac gtgtcagtcg cccacgacgg cgctggaaag agggctact 8760
accttaccgg tgaccctaca acccccctcg cgagagccgc gtgggagaca gcaagacaca 8820
ctccagtcga ttcctggcta ggcaacataa tcatgtttgc cccacactg tgggcgagga 8880
tgatactgat gacccatttc tttagcgtcc tcatagccag ggatcagctt gaacaggctc 8940
ttaactgtga gatctacgga gcctgctact ccatagaacc actggatcta cctccaatca 9000
ttcaaagact ccatggcctc agcgcatttt cactccacag ttactctcca ggtgaaatca 9060
ataggggtggc cgcgtgcctc agaaaacttg ggggtcccgc cttgcgagct tggagacacc 9120
gggcccggag cgtccgcgct aggccttctgt ccagaggagg cagggtgct atatgtggca 9180
agtacctctt caactgggca gtaagaacaa agctcaaaact cactccaata gcggccgctg 9240
gccggctgga cttgtccggt tggttcacgg ctggctacag cgggggagac atttatcaca 9300
gcgtgtctca tgcccggccc cgctggttct ggttttgctt actcctgctc gctgcagggg 9360
taggcattcta cctcctcccc aaccgatgaa ggttggggta aacactccgg cctcttaagc 9420
catttcctgt tttttttttt tttttttttt tttttttttt tttttttttt cctcctttcc 9480
ttcttttttt cttttctttt tcccttcttt aatggtggct ccattctagc cctagtcacg 9540
gctagctgtg aaaggtccgt gagccgcagt actgcagaga gtgctgatac tggcctctct 9600
gcagatcatg t 9611

```

<210> 10
 <211> 3015
 <212> PRT
 <213> Hepatitis C virus

<400> 10

Met	Ser	Thr	Asn	Pro	Lys	Pro	Gln	Arg	Lys	Thr	Lys	Arg	Asn	Thr	Asn
1				5					10					15	
Arg	Arg	Pro	Gln	Asp	Val	Lys	Phe	Pro	Gly	Gly	Gly	Gln	Ile	Val	Gly
			20					25					30		
Gly	Val	Tyr	Leu	Leu	Pro	Arg	Arg	Gly	Pro	Arg	Leu	Gly	Val	Arg	Ala
		35					40					45			
Thr	Arg	Lys	Thr	Ser	Glu	Arg	Ser	Gln	Pro	Arg	Gly	Arg	Arg	Gln	Pro
	50					55					60				
Ile	Pro	Lys	Asp	Arg	Arg	Ser	Thr	Gly	Lys	Ser	Trp	Gly	Lys	Pro	Gly
65				70					75					80	
Tyr	Pro	Trp	Pro	Leu	Tyr	Gly	Asn	Glu	Gly	Leu	Gly	Trp	Ala	Gly	Trp
			85					90					95		
Leu	Leu	Ser	Pro	Arg	Gly	Ser	Arg	Pro	Ser	Trp	Gly	Pro	Asn	Asp	Pro
			100					105					110		
Arg	His	Arg	Ser	Arg	Asn	Val	Gly	Lys	Val	Ile	Asp	Thr	Leu	Thr	Cys
		115					120				125				
Gly	Phe	Ala	Asp	Leu	Met	Gly	Tyr	Ile	Pro	Val	Val	Gly	Ala	Pro	Leu
	130					135					140				
Gly	Gly	Val	Ala	Arg	Ala	Leu	Ala	His	Gly	Val	Arg	Val	Leu	Glu	Asp
145				150					155					160	
Gly	Val	Asn	Phe	Ala	Thr	Gly	Asn	Leu	Pro	Gly	Cys	Ser	Phe	Ser	Ile
			165					170					175		
Phe	Leu	Leu	Ala	Leu	Leu	Ser	Cys	Ile	Thr	Thr	Pro	Val	Ser	Ala	Ala
			180					185					190		
Glu	Val	Lys	Asn	Ile	Ser	Thr	Gly	Tyr	Met	Val	Thr	Asn	Asp	Cys	Thr
		195					200					205			
Asn	Asp	Ser	Ile	Thr	Trp	Gln	Leu	Gln	Ala	Ala	Val	Leu	His	Val	Pro
	210					215					220				
Gly	Cys	Val	Pro	Cys	Glu	Lys	Val	Gly	Asn	Ala	Ser	Gln	Cys	Trp	Ile
225					230				235						240
Pro	Val	Ser	Pro	Asn	Val	Ala	Val	Gln	Arg	Pro	Gly	Ala	Leu	Thr	Gln
			245					250					255		
Gly	Leu	Arg	Thr	His	Ile	Asp	Met	Val	Val	Met	Ser	Ala	Thr	Leu	Cys
			260					265					270		
Ser	Ala	Leu	Tyr	Val	Gly	Asp	Leu	Cys	Gly	Gly	Val	Met	Leu	Ala	Ala
		275					280					285			
Gln	Met	Phe	Ile	Val	Ser	Pro	Gln	His	His	Trp	Phe	Val	Gln	Asp	Cys

2053293_1.TXT

290	Asn	Cys	Ser	Ile	Tyr	Pro	Gly	Thr	Ile	Thr	Gly	His	Arg	Met	Ala	Trp
305	Asp	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Ala	Thr	Met	Ile	Leu	Ala	Tyr
					325					330					335	
	Ala	Met	Arg	Val	Pro	Glu	Val	Ile	Ile	Asp	Ile	Ile	Ser	Gly	Ala	His
				340					345					350		
	Trp	Gly	Val	Met	Phe	Gly	Leu	Ala	Tyr	Phe	Ser	Met	Gln	Gly	Ala	Trp
			355					360					365			
	Ala	Lys	Val	Val	Val	Ile	Leu	Leu	Ala	Ala	Gly	Val	Asp	Ala	Arg	
		370					375				380					
	Thr	His	Thr	Val	Gly	Gly	Ser	Ala	Ala	Gln	Thr	Thr	Gly	Arg	Leu	Thr
385					390					395					400	
	Ser	Leu	Phe	Asp	Met	Gly	Pro	Arg	Gln	Lys	Ile	Gln	Leu	Val	Asn	Thr
				405					410						415	
	Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	Ser
			420						425					430		
	Leu	His	Thr	Gly	Phe	Ile	Ala	Ser	Leu	Phe	Tyr	Thr	His	Ser	Phe	Asn
			435					440					445			
	Ser	Ser	Gly	Cys	Pro	Glu	Arg	Met	Ser	Ala	Cys	Arg	Ser	Ile	Glu	Ala
		450					455					460				
	Phe	Arg	Val	Gly	Trp	Gly	Ala	Leu	Gln	Tyr	Glu	Asp	Asn	Val	Thr	Asn
465					470						475				480	
	Pro	Glu	Asp	Met	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Pro	Pro	Arg	Gln	Cys
				485						490					495	
	Gly	Val	Val	Ser	Ala	Lys	Thr	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr
			500						505					510		
	Pro	Ser	Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Leu	Gly	Ala	Pro	Thr
			515					520					525			
	Tyr	Thr	Trp	Gly	Glu	Asn	Glu	Thr	Asp	Val	Phe	Leu	Leu	Asn	Ser	Thr
						535						540				
	Arg	Pro	Pro	Leu	Gly	Ser	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Ser
545					550					555						560
	Gly	Tyr	Thr	Lys	Thr	Cys	Gly	Ala	Pro	Pro	Cys	Arg	Thr	Arg	Ala	Asp
				565					570						575	
	Phe	Asn	Ala	Ser	Thr	Asp	Leu	Leu	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys
			580						585					590		
	His	Pro	Asp	Thr	Thr	Tyr	Leu	Lys	Cys	Gly	Ser	Gly	Pro	Trp	Leu	Thr
			595					600					605			
	Pro	Arg	Cys	Leu	Ile	Asp	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys
		610					615					620				
	Thr	Val	Asn	Tyr	Thr	Ile	Phe	Lys	Ile	Arg	Met	Tyr	Val	Gly	Gly	Val
625						630					635				640	
	Glu	His	Arg	Leu	Thr	Ala	Ala	Cys	Asn	Phe	Thr	Arg	Gly	Asp	Arg	Cys
				645						650				655		
	Asn	Leu	Glu	Asp	Arg	Asp	Arg	Ser	Gln	Leu	Ser	Pro	Leu	Leu	His	Ser
			660						665					670		
	Thr	Thr	Glu	Trp	Ala	Ile	Leu	Pro	Cys	Ser	Tyr	Ser	Asp	Leu	Pro	Ala
			675					680					685			
	Leu	Ser	Thr	Gly	Leu	Leu	His	Leu	His	Gln	Asn	Ile	Val	Asp	Val	Gln
		690					695					700				
	Phe	Met	Tyr	Gly	Leu	Ser	Pro	Ala	Leu	Thr	Lys	Tyr	Ile	Val	Arg	Trp
705						710					715					720
	Glu	Trp	Val	Ile	Leu	Phe	Leu	Leu	Leu	Ala	Asp	Ala	Arg	Val	Cys	
				725					730					735		
	Ala	Cys	Leu	Trp	Met	Leu	Ile	Leu	Leu	Gly	Gln	Ala	Glu	Ala	Ala	Leu
			740						745				750			
	Glu	Asn	Leu	Val	Ile	Leu	Asn	Ala	Ala	Ser	Leu	Ala	Gly	Thr	His	Gly
		755						760					765			
	Leu	Val	Ser	Phe	Leu	Val	Phe	Cys	Phe	Ala	Trp	Tyr	Leu	Lys	Gly	
		770					775				780					
	Arg	Trp	Val	Pro	Gly	Ala	Val	Tyr	Ala	Leu	Tyr	Gly	Met	Trp	Pro	Leu
785					790						795					800

2053293_1.TXT

Leu Leu Leu Leu Leu Ala Leu Pro Gln Arg Ala Tyr Ala Leu Asp Thr
 805 810 815
 Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly Leu Met Ala
 820 825 830
 Leu Thr Leu Ser Pro Tyr Tyr Lys Arg Tyr Ile Ser Trp Cys Met Trp
 835 840 845
 Trp Leu Gln Tyr Phe Leu Thr Arg Val Glu Ala Gln Leu His Val Trp
 850 855 860
 Val Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Val Ile Leu Leu
 865 870 875 880
 Met Cys Val Val His Pro Thr Leu Val Phe Asp Ile Thr Lys Leu Leu
 885 890 895
 Leu Ala Ile Phe Gly Pro Leu Trp Ile Leu Gln Ala Ser Leu Leu Lys
 900 905 910
 Val Pro Tyr Phe Val Arg Val Gln Gly Leu Leu Arg Ile Cys Ala Leu
 915 920 925
 Ala Arg Lys Ile Ala Gly Gly His Tyr Val Gln Met Ala Ile Ile Lys
 930 935 940
 Leu Gly Ala Leu Thr Gly Thr Tyr Val Tyr Asn His Leu Thr Pro Leu
 945 950 955 960
 Arg Asp Trp Ala His Asn Gly Leu Arg Asp Leu Ala Val Ala Val Glu
 965 970 975
 Pro Val Val Phe Ser Arg Met Glu Thr Lys Leu Ile Thr Trp Gly Ala
 980 985 990
 Asp Thr Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala
 995 1000 1005
 Arg Arg Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser
 1010 1015 1020
 Lys Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr
 1025 1030 1035 1040
 Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys
 1045 1050 1055
 Asn Gln Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr
 1060 1065 1070
 Phe Leu Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly
 1075 1080 1085
 Ala Gly Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met
 1090 1095 1100
 Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly
 1105 1110 1115 1120
 Ser Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu
 1125 1130 1135
 Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser
 1140 1145 1150
 Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser
 1155 1160 1165
 Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe
 1170 1175 1180
 Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile
 1185 1190 1195 1200
 Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp
 1205 1210 1215
 Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu
 1220 1225 1230
 His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr
 1235 1240 1245
 Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala
 1250 1255 1260
 Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp Pro
 1265 1270 1275 1280
 Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr
 1285 1290 1295
 Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly

2053293_1.TXT

1300 1305 1310
 Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala Thr
 1315 1320 1325
 Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly
 1330 1335 1340
 Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr
 1345 1350 1355 1360
 Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly Glu
 1365 1370 1375
 Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly Gly
 1380 1385 1390
 Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala
 1395 1400 1405
 Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly
 1410 1415 1420
 Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val Ser
 1425 1430 1435 1440
 Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile
 1445 1450 1455
 Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro
 1460 1465 1470
 Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val Ser Arg
 1475 1480 1485
 Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg
 1490 1495 1500
 Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val
 1505 1510 1515 1520
 Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro
 1525 1530 1535
 Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu
 1540 1545 1550
 Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly
 1555 1560 1565
 Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly
 1570 1575 1580
 Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg
 1585 1590 1595 1600
 Ala Gln Ala Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile
 1605 1610 1615
 Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu
 1620 1625 1630
 Gly Ala Val Gln Asn Glu Val Thr Leu Thr His Pro Ile Thr Lys Tyr
 1635 1640 1645
 Ile Met Thr Cys Met Ser Ala Asp Leu Glu Val Val Thr Ser Thr Trp
 1650 1655 1660
 Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser
 1665 1670 1675 1680
 Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro
 1685 1690 1695
 Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met
 1700 1705 1710
 Glu Glu Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu
 1715 1720 1725
 Ala Glu Gln Phe Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala Ser
 1730 1735 1740
 Arg His Ala Glu Val Ile Thr Pro Ala Val Gln Thr Asn Trp Gln Lys
 1745 1750 1755 1760
 Leu Glu Val Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile
 1765 1770 1775
 Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Ile Ala
 1780 1785 1790
 Ser Leu Met Ala Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly
 1795 1800 1805

2053293_1.TXT

Gln Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu
 1810 1815 1820
 Ala Ala Pro Gly Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly
 1825 1830 1835 1840
 Ala Ala Ile Gly Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu
 1845 1850 1855
 Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
 1860 1865 1870
 Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
 1875 1880 1885
 Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
 1890 1895 1900
 Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 1905 1910 1915 1920
 Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
 1925 1930 1935
 His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu
 1940 1945 1950
 Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile
 1955 1960 1965
 Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
 1970 1975 1980
 Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
 1985 1990 1995 2000
 Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln
 2005 2010 2015
 Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg
 2020 2025 2030
 Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met
 2035 2040 2045
 Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe
 2050 2055 2060
 Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro
 2065 2070 2075 2080
 Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu
 2085 2090 2095
 Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp
 2100 2105 2110
 Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu
 2115 2120 2125
 Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu
 2130 2135 2140
 Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val
 2145 2150 2155 2160
 Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr
 2165 2170 2175
 Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg
 2180 2185 2190
 Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ala Ser
 2195 2200 2205
 Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp
 2210 2215 2220
 Ser Pro Asp Ala Glu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu
 2225 2230 2235 2240
 Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys Val Val Ile
 2245 2250 2255
 Leu Asp Ser Phe Asp Pro Leu Val Ala Glu Glu Asp Glu Arg Glu Val
 2260 2265 2270
 Ser Val Pro Ala Glu Ile Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala
 2275 2280 2285
 Leu Pro Val Trp Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr
 2290 2295 2300
 Trp Lys Lys Pro Asp Tyr Glu Pro Pro Val Val His Gly Cys Pro Leu

2053293_1.TXT

2305 2310 2315 2320
 Pro Pro Pro Arg Ser Pro Pro Val Pro Pro Pro Arg Lys Lys Arg Thr
 2325 2330 2335
 Val Val Leu Thr Glu Ser Thr Leu Ser Thr Ala Leu Ala Glu Leu Ala
 2340 2345 2350
 Thr Lys Ser Phe Gly Ser Ser Ser Thr Ser Gly Ile Thr Gly Asp Asn
 2355 2360 2365
 Thr Thr Thr Ser Ser Glu Pro Ala Pro Ser Gly Cys Pro Pro Asp Ser
 2370 2375 2380
 Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly
 2385 2390 2395 2400
 Asp Pro Asp Leu Ser Asp Gly Ser Trp Ser Thr Val Ser Ser Gly Ala
 2405 2410 2415
 Asp Thr Glu Asp Val Val Cys Cys Ser Met Ser Tyr Ser Trp Thr Gly
 2420 2425 2430
 Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys Leu Pro Ile Asn
 2435 2440 2445
 Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr Ser Thr
 2450 2455 2460
 Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val Thr Phe Asp Arg
 2465 2470 2475 2480
 Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys
 2485 2490 2495
 Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala
 2500 2505 2510
 Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly
 2515 2520 2525
 Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn
 2530 2535 2540
 Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr
 2545 2550 2555 2560
 Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly
 2565 2570 2575
 Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg
 2580 2585 2590
 Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu
 2595 2600 2605
 Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg
 2610 2615 2620
 Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly
 2625 2630 2635 2640
 Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp
 2645 2650 2655
 Ile Arg Thr Glu Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln
 2660 2665 2670
 Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly
 2675 2680 2685
 Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg
 2690 2695 2700
 Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr
 2705 2710 2715 2720
 Ile Lys Ala Arg Ala Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr
 2725 2730 2735
 Met Leu Val Cys Gly Asp Asp Leu Val Ile Cys Glu Ser Ala Gly
 2740 2745 2750
 Val Gln Glu Asp Ala Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr
 2755 2760 2765
 Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu
 2770 2775 2780
 Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His Asp Gly
 2785 2790 2795 2800
 Ala Gly Lys Arg Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr Pro Leu
 2805 2810 2815

2053293_1.TXT

Ala Arg Ala Ala Trp Glu Thr Ala Arg His Thr Pro Val Asn Ser Trp
 2820 2825 2830
 Leu Gly Asn Ile Ile Met Phe Ala Pro Thr Leu Trp Ala Arg Met Ile
 2835 2840 2845
 Leu Met Thr His Phe Phe Ser Val Leu Ile Ala Arg Asp Gln Leu Glu
 2850 2855 2860
 Gln Ala Leu Asn Cys Glu Ile Tyr Gly Ala Cys Tyr Ser Ile Glu Pro
 2865 2870 2875 2880
 Leu Asp Leu Pro Pro Ile Ile Gln Arg Leu His Gly Leu Ser Ala Phe
 2885 2890 2895
 Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys
 2900 2905 2910
 Leu Arg Lys Leu Gly Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala
 2915 2920 2925
 Arg Ser Val Arg Ala Arg Leu Ser Arg Gly Gly Arg Ala Ala Ile
 2930 2935 2940
 Cys Gly Lys Tyr Leu Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu
 2945 2950 2955 2960
 Thr Pro Ile Ala Ala Ala Gly Arg Leu Asp Leu Ser Gly Trp Phe Thr
 2965 2970 2975
 Ala Gly Tyr Ser Gly Gly Asp Ile Tyr His Ser Val Ser His Ala Arg
 2980 2985 2990
 Pro Arg Trp Phe Trp Phe Cys Leu Leu Leu Leu Ala Ala Gly Val Gly
 2995 3000 3005
 Ile Tyr Leu Leu Pro Asn Arg
 3010 3015

<210> 11
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 11
 actggacacg gaggtggccg cgtc 24

<210> 12
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 12
 ttgttcttgt cgggttaatg gcgc 24

<210> 13
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 13
 ggggtgacta cacacatgag taag 24

<210> 14
 <211> 22

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 14
 aagcgcccct aacttgatga tg 22

 <210> 15
 <211> 40
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 15
 cgtcatcgat acctcagcgg gcatatgcac tggacacgga 40

 <210> 16
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 16
 gtccagtgca tatgcccgt gagg 24

 <210> 17
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 17
 catgcaccag ctgatatagc gcttgtaata tg 32

 <210> 18
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 18
 tccgtagagg aagcttgca cctgacgccc 30

 <210> 19
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 19
 cagaggaggc agggctgcta tatgtggcaa gtac 34
 cagaggaggc agggctgcta tatgtggcaa gtac

2053293_1.TXT

<210> 20
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 20
 gtacttgcca catatagcag ccctgcctcc tctg 34

<210> 21
 <211> 43
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 21
 cgtctctaga caggaaatgg cttaagaggc cggagtgttt acc 43

<210> 22
 <211> 65
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 22
 ttatggatgc tcattctgtt gggccaggcc gaagcagctt tggagaacct cgtaatactc 60
 aatgc 65

<210> 23
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 23
 aggatttgtg ctcatggtgc acggtctacg ag 32

<210> 24
 <211> 50
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 24
 ttttttttgc ggccgctaatac gactcact atagaccgc ccctaataagg 50

<210> 25
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 25
ccgtgcacca tgagcacaaa tcctaaacct c 31

<210> 26
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 26
ggatgtaccc catgaggtcg gcaaag 26

<210> 27
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 27
gtttg'gcct gcttatggat gctcatcttg 30

<210> 28
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 28
gcgtcataag catatgcctg ttgggg 26

<210> 29
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 29
ccctcagcac tggagtacat ctg 23

<210> 30
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 30
cgtcatgcat acccctaggg cggctctcat tgaagaggg 39

<210> 31
<211> 30
<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 31

cgtccctct tcaatgagag ccgctctaga

30

<210> 32

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 32

gcggtgaaga ccaagctcaa actcactc

28

<210> 33

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 33

aatctagaag gcgcgcttcc ggcaatggag tgagtttgag c

41

<210> 34

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 34

cgtctctaga ggataaatcc aggaggcgcg cttccggc

38

<210> 35

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 35

tactttttgt aggggtaggc cttttcc

27

<210> 36

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 36

cgtctctaga gtgtagctaa tgtgtgccgc tcta

34

<210> 37
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 37
 ctatggagtg tagctaattgt gtgc

24

<210> 38
 <211> 107
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 38
 cgtctctaga catgatctgc agagagacca gttacggcac tctctgcagt catgcggctc 60
 acggaccttt cacagctagc cgtgactagg gctaagatgg agccacc 107

<210> 39
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 39
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 40
 <211> 45
 <212> PRT
 <213> Hepatitis c virus

<400> 40
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 41
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 41
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 42
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 42
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 43
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 43
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 44
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 44
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 45
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 45
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 46
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

2053293_1.TXT

<400> 46
 Leu Leu Leu Ala Ala Gly Val Asp Ala Gln Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Ile Asn Thr Asn Gly Ser
 35 40 45

<210> 47
 <211> 45
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> consensus sequence

<400> 47
 Leu Leu Leu Ala Ala Gly Val Asp Ala Arg Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Ala Ala Gln Thr Thr Gly Arg Leu Thr Ser Leu Phe Asp Met Gly
 20 25 30
 Pro Arg Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser
 35 40 45

<210> 48
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 48
 Leu Leu Leu Ala Ala Gly Val Asp Ala Gln Thr His Thr Val Gly Gly
 1 5 10 15
 Ser Thr Ala His Asn Ala Arg Thr Leu Thr Gly Met Phe Ser Leu Gly
 20 25 30
 Ala Arg Gln Lys Ile Gln Leu Ile Asn Thr Asn Gly Ser
 35 40 45

<210> 49
 <211> 360
 <212> DNA
 <213> Hepatitis C virus

<400> 49
 gccagcccc tgatgggggc gacactccac catgaatcac tcccctgtga ggaactactg 60
 tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgtcgtgcag cctccaggac 120
 cccccctccc gggagagcca tagtggtctg cggaaccggt gagtacaccg gaattgccag 180
 gacgaccggg tcctttcttg gataaaccgc ctcaatgcct ggagatttgg gcgtgcccc 240
 gcaagactgc tagccgagta gtgttggtgc gcgaaaggcc ttgtggtact gcctgatagg 300
 gtgcttgcca gtgccccggg aggtctcgtg gaccgtgcac catgagcacg aatcctaaac 360

<210> 50
 <211> 360
 <212> DNA
 <213> Hepatitis C virus

<400> 50
 gccagcccc tgatgggggc gacactccac catgaatcac tcccctgtga ggaactactg 60
 tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgtcgtgcag cctccaggac 120
 cccccctccc gggagagcca tagtggtctg cggaaccggt gagtacaccg gaattgccag 180
 Page 52

2053293_1.TXT

gaagactggg	tcctttcttg	gataaaccgc	ctctatgccc	ggccatttgg	gcgtgcccc	240
gcaagactgc	tagccgagta	gcgttggtt	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcaca	aatcctaaac	360

<210> 51
 <211> 360
 <212> DNA
 <213> Hepatitis C virus

<400> 51						
gccagcccc	tgatgggggc	gacactccac	catgaatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggtctg	cggaaaccgt	gagtaaccg	gaattgccgg	180
gaagactggg	tcctttcttg	gataaaccgc	ctctatgccc	ggccatttgg	gcgtgcccc	240
gcaagactgc	tagccgagta	gcgttggtt	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcaca	aatcctaaac	360

<210> 52
 <211> 360
 <212> DNA
 <213> Hepatitis C virus

<400> 52						
gccagcccc	tgatgggggc	gacactccac	catgaatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggtctg	cggaaaccgt	gagtaaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gataaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcaagactgc	tagccgagta	gtgttggtc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcaca	aatcctaaac	360

<210> 53
 <211> 360
 <212> DNA
 <213> Hepatitis C virus

<400> 53						
gccagcccc	tgatgggggc	gacactccac	catgaatcac	tcccctgtga	ggaactactg	60
tcttcacgca	gaaagcgtct	agccatggcg	ttagtatgag	tgtcgtgcag	cctccaggac	120
ccccctccc	gggagagcca	tagtggtctg	cggaaaccgt	gagtaaccg	gaattgccag	180
gacgaccggg	tcctttcttg	gataaaccgc	ctcaatgcct	ggagatttgg	gcgtgcccc	240
gcaagactgc	tagccgagta	gtgttggtc	gcgaaaggcc	ttgtggtact	gcctgatagg	300
gtgcttgcca	gtgccccggg	aggtctcgta	gaccgtgcac	catgagcaca	aatcctaaac	360

<210> 54
 <211> 359
 <212> DNA
 <213> Hepatitis C virus

<400> 54						
acccgcccct	aataggggcg	acactccgcc	atgaatcact	cccctgtgag	gaactactgt	60
cttcacgcag	aaagcgtcta	gccatggcgt	tagtatgagt	gtcgtacagc	ctccaggccc	120
ccccctccc	ggagagccat	agtgggtctg	ggaaccgggt	agtaaccgg	aattgccggg	180
aagactgggt	cctttcttgg	ataaaccgc	tctatgccc	gccatttggg	cgtgccccg	240
caagactgct	agccgagtag	cgttgggtt	cgaaggcct	tgtggtactg	cctgatagg	300
tgcttgccag	tgccccggga	ggtctcgtag	accgtgcacc	atgagcaca	atcctaaac	359

<210> 55
 <211> 225
 <212> DNA

<213> Hepatitis C virus

```

<400> 55
tgaaggttgg ggtaaact cggcctctt aagccatttc ctggyyyyyy yyyyyyyyyy 60
yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy 120
yyyyaatggt ggctccatct tagccctagt cacggctagc tgtgaaaggt ccgtgagccg 180
catgactgca gagagtgtctg atactggcct ctctgcagat catgt 225

```

<210> 56

<211> 225

<212> DNA

<213> Hepatitis C virus

```

<400> 56
tgaaggttgg ggtaaact cggcctctt aagccatttc ctggyyyyyy yyyyyyyyyy 60
yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy 120
yyyyaatggt ggctccatct tagccctagt cacggctagc tgtgaaaggt ccgtgagccg 180
catgactgca gagagtgtctg atactggcct ctctgcagat catgt 225

```

<210> 57

<211> 225

<212> DNA

<213> Hepatitis C virus

```

<400> 57
tgaaggttgg ggtaaact cggcctctt aagccatttc ctggyyyyyy yyyyyyyyyy 60
yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy 120
yyyyaatggt ggctccatct tagccctagt cacggctagc tgtgaaaggt ccgtgagccg 180
catgactgca gagagtgtctg atactggcct ctctgcagat catgt 225

```

<210> 58

<211> 225

<212> DNA

<213> Hepatitis C virus

```

<400> 58
tgaaggttgg ggtaaact cggcctctt aagccatttc ctggyyyyyy yyyyyyyyyy 60
yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy 120
yyyyaatggt ggctccatct tagccctagt cacggctagc tgtgaaaggt ccgtgagccg 180
catgactgca gagagtgtctg atactggcct ctctgcagat catgt 225

```

<210> 59

<211> 225

<212> DNA

<213> Hepatitis C virus

```

<400> 59
tgaaggttgg ggtaaact cggcctctt aagccatttc ctggyyyyyy yyyyyyyyyy 60
yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy 120
yyyyaatggt ggctccatct tagccctagt cacggctagc tgtgaaaggt ccgtgagccg 180
catgactgca gagagtgtctg atactggcct ctctgcagat catgt 225

```

<210> 60

<211> 272

<212> DNA

<213> hepatitis C virus

```

<400> 60
tagagcggca cacattagct aactccata gctaactgtc ccyyyyyyy yyyyyyyyyy 60
yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy 120
yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyyyyyyyyy yyygggtggc 180
tccatcttag ccctagtcac ggctagctgt gaaaggtccg tgagccgcat gactgcagag 240
agtgccgtaa ctggtctctc tgcagatcat gt 272

```

<210> 61
 <211> 96
 <212> PRT
 <213> Hepatitis C virus

<400> 61
 Arg Val Cys Ser Cys Leu Trp Met Met Leu Leu Ile Ser Gln Ala Glu
 1 5 10 15
 Ala Ala Leu Glu Asn Leu Val Ile Leu Asn Ala Ala Ser Leu Ala Gly
 20 25 30
 Thr His Gly Leu Val Ser Phe Leu Val Phe Phe Cys Phe Ala Trp Tyr
 35 40 45
 Leu Lys Gly Arg Trp Val Pro Gly Ala Val Tyr Ala Leu Tyr Gly Met
 50 55 60
 Trp Pro Leu Leu Leu Leu Leu Leu Ala Leu Pro Gln Arg Ala Tyr Ala
 65 70 75 80
 Leu Asp Thr Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly
 85 90 95

<210> 62
 <211> 96
 <212> PRT
 <213> Hepatitis C virus

<400> 62
 Arg Val Cys Ala Cys Leu Trp Met Leu Ile Leu Leu Gly Gln Ala Glu
 1 5 10 15
 Ala Ala Leu Glu Lys Leu Val Ile Leu His Ala Ala Ser Ala Ala Ser
 20 25 30
 Cys Asn Gly Phe Leu Tyr Phe Val Ile Phe Phe Val Ala Ala Trp Tyr
 35 40 45
 Ile Lys Gly Arg Val Val Pro Leu Ala Thr Tyr Ser Leu Thr Gly Leu
 50 55 60
 Trp Ser Phe Ser Leu Leu Leu Leu Ala Leu Pro Gln Gln Ala Tyr Ala
 65 70 75 80
 Leu Asp Thr Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly
 85 90 95

<210> 63
 <211> 96
 <212> PRT
 <213> Hepatitis C virus

<400> 63
 Arg Val Cys Ala Cys Leu Trp Met Leu Ile Leu Leu Gly Gln Ala Glu
 1 5 10 15
 Ala Ala Leu Glu Asn Leu Val Ile Leu Asn Ala Ala Ser Leu Ala Gly
 20 25 30
 Thr His Gly Leu Val Ser Phe Leu Val Phe Phe Cys Phe Ala Trp Tyr
 35 40 45
 Leu Lys Gly Arg Trp Val Pro Gly Ala Val Tyr Ala Leu Tyr Gly Met
 50 55 60
 Trp Pro Leu Leu Leu Leu Leu Leu Ala Leu Pro Gln Arg Ala Tyr Ala
 65 70 75 80
 Leu Asp Thr Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly
 85 90 95

<210> 64
 <211> 96

<212> PRT

<213> Hepatitis C virus

<400> 64

```

Arg Val Cys Ala Cys Leu Trp Met Leu Ile Leu Leu Gly Gln Ala Glu
 1      5      10      15
Ala Ala Leu Glu Lys Leu Val Ile Leu His Ala Ala Ser Ala Ala Ser
 20      25      30
Cys Asn Gly Phe Leu Tyr Phe Val Ile Phe Phe Val Ala Ala Trp Tyr
 35      40      45
Ile Lys Gly Arg Val Val Pro Leu Ala Thr Tyr Ser Leu Thr Gly Leu
 50      55      60
Trp Ser Phe Ser Leu Leu Leu Leu Ala Leu Pro Gln Gln Ala Tyr Ala
 65      70      75      80
Leu Asp Thr Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly
 85      90      95

```

<210> 65

<211> 96

<212> PRT

<213> Hepatitis C virus

<400> 65

```

Arg Val Cys Ala Cys Leu Trp Met Leu Ile Leu Leu Gly Gln Ala Glu
 1      5      10      15
Ala Ala Leu Glu Asn Leu Val Ile Leu Asn Ala Ala Ser Leu Ala Gly
 20      25      30
Thr His Gly Leu Val Ser Phe Leu Val Phe Phe Cys Phe Ala Trp Tyr
 35      40      45
Leu Lys Gly Arg Trp Val Pro Gly Ala Val Tyr Ala Leu Tyr Gly Met
 50      55      60
Trp Pro Leu Leu Leu Leu Leu Leu Ala Leu Pro Gln Arg Ala Tyr Ala
 65      70      75      80
Leu Asp Thr Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly
 85      90      95

```

<210> 66

<211> 96

<212> PRT

<213> Hepatitis C virus

<400> 66

```

Arg Val Cys Ala Cys Leu Trp Met Leu Ile Leu Leu Gly Gln Ala Glu
 1      5      10      15
Ala Ala Leu Glu Lys Leu Val Ile Leu His Ala Ala Ser Ala Ala Ser
 20      25      30
Cys Asn Gly Phe Leu Tyr Phe Val Ile Phe Phe Val Ala Ala Trp Tyr
 35      40      45
Ile Lys Gly Arg Val Val Pro Leu Ala Thr Tyr Ser Leu Thr Gly Leu
 50      55      60
Trp Ser Phe Ser Leu Leu Leu Leu Ala Leu Pro Gln Gln Ala Tyr Ala
 65      70      75      80
Tyr Asp Ala Ser Val His Gly Gln Ile Gly Ala Ala Leu Leu Val Met
 85      90      95

```

<210> 67

<211> 9599

<212> DNA

<213> Hepatitis C virus

<400> 67

```

gccagccccc tgatgggggc gacactccac catgaatcac tcccctgtga ggaactactg 60
tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgtcgtgcag cctccaggac 120
ccccctccc gggagagcca tagtggctcg cggaaaccgt gagtacaccg gaattgccag 180
gacgaccggg tcctttcttg gataaaccgg ctcaatgcct ggagatttgg gcgtgcccc 240
gcaagactgc tagccgagta gtgttggttc gcgaaaggcc ttgtggtact gcctgatagg 300
gtgcttgca gtgccccggg aggtctcgta gaccgtgcac catgagcacg aatcctaaac 360
ctcaaagaaa aaccaaacgt aacaccaacc gtcgcccaca ggacgtcaag ttcccgggtg 420
gcggtcagat cgttggtgga gtttacttgt tgccgcgcag gggccctaga ttgggtgtgc 480
gcgcgacgag gaagacttcc gagcggtcgc aacctcgagg tagacgtcag cctatcccca 540
aggcacgtcg gcccgaaggc aggacctggg ctacgcccgg gtacccttgg cccctctatg 600
gcaatgaggg ttgcgggtgg gcgggatggc tcctgtctcc ccgtggctct cggcctagct 660
ggggcccccac agacccccgg cgtaggtcgc gcaatttggg taaggctatc gataccctta 720
cgtgcggctt cgccgacctc atggggatca taccgtcgt cggcgccctt cttggaggcg 780
ctgccagggc cctggcgcat ggcgtccggg ttctggaaga cggcgtgaac tatgcaacag 840
ggaaccttcc agcttgctct ttctctatct tcttctggc cctgctctct tgcctgactg 900
tgcccgttcc agcttaccaa gtgcgcaatt cctcggggct ttaccatgtc accaatgatt 960
gccctaactc gagtattgtg tacgaggcgg ccgatgccat cctgcacact ccggggtgtg 1020
tcccttgctg tcgcgagggg aacgcctcga ggtgttgggt ggcggtgacc cccacggtgg 1080
ccaccagggg cggcaaactc cccacaacgc agcttcgacg tcatatcgat ctgcttctcg 1140
ggagcgccac cctctgctcg gccctctacg tgggggacct gtgcgggtct gtcttctctt 1200
ttggtcaact gtttaccctc tctcccaggc gccactggac gacgcaagac tgcaattgtt 1260
ctatctatcc gccccatata acgggtcatc gcatggcatg ggatatgatg atgaactggt 1320
cccctacggc agcgttggtg gtagctcagc tgctccggat cccacaagcc atcatggaca 1380
tgatcgctgg tgctcactgg ggagtcctgg cgggcatagc gtatttctcc atggtgggga 1440
actgggcgaa ggtcctggtg gtgctgctgc tatttgccgg cgtcgacgcg gaaaccacg 1500
tcaccggggg aaatgccggc cgcaccacgg ctgggcttgt tggctctctt acaccaggcg 1560
ccaagcagaa catccaactg atcaacacca acggcagttg gcacatcaat agcacggcct 1620
tgaattgcaa tgaagcctt aacaccggct ggtagcagg gctcttctat caacacaaat 1680
tcaactcttc aggtgtcct gagaggttgg ccagctgccg acgccttacc gattttgccc 1740
agggctgggg tcctatcagt tatgccaacg gaagcggcct cgacgaacgc ccctactgtc 1800
ggcactaccc tccaagacct tgtggcattg tgcccgaata gagcgtgtgt ggcccgggtat 1860
attgcttcac tcccagcccc gtggtggtgg gaacgaccga caggtcgggc ggcctacct 1920
acagctgggg tgcaaatgat acggatgtct tcgtctttaa caacaccagg ccaccgctgg 1980
gcaattgggt cggttgtaac tggatgaact caactggatt caccaaagtg tgcggagcgc 2040
ccccttggtg catcggaggg gtgggcaaca acaccttgct ctgccccact gattgcttcc 2100
gcaaacatcc ggaagccaca tactctcggg gcggtctcgg tccctggatt acaccaggat 2160
gcatggtcga ctaccgctat aggtcttggc actatccttg taccatcaat tacaccagct 2220
tcaaagtcag gatgtacgtg ggaggggtcg agcacaggct ggaagcggcc tgcaactgga 2280
cgcggggcca acgctgtgat ctggaagaca gggacaggtc cgagctcagc ccgttgctgc 2340
tgtccaccac acagtggcag gtccttccgt gttctttcac gaccctgcca gccttgcca 2400
ccggcctcat ccacctccac cagaacattg tggacgtgca gtacttgta cctctgttcc 2460
caagcatcgc gtcctggggc attaagtggg agtactgtct tctcctgttc cttctgtctg 2520
cagacgcgcg gcttgctcc tgcttggtga tgatgtact catatcccaa gtcggaggcg 2580
ctttggagaa cctcgtataa ctcaatgcag catccctggc cgggacgcac ggtcttgtgt 2640
ccttctctcg gttcttctgc tttgcgtggt atctgaaggg taggtgggtg cccggagcgg 2700
tctacgccct ctacgggatg tggcctctcc tcctgctcct gctggcgttg cctcagcggg 2760
catacgcact ggacacggag gtggccgcgt cgtgtggcgg cgttggtctt gtcgggttaa 2820
tggcgctgac tctgtcgcca tattacaagc gctatatcag ctggtgcatg tggtggcttc 2880
agtattttct gaccagagta gaagcgcaac tgcacgtgtg ggttcccccc ctcaacgtcc 2940
ggggggggcg cgatgccgtc atcttactca tgtgtgtagt acaccgcacc ctggtatttg 3000
acatcaccaa actactcctg gccatcttcg gaccttttg gattcttcaa gccagtttgc 3060
ttaagtccc ctacttcgtg cgcttccaag gccttctccg gatctgcgcg ctagcgcgga 3120
agatagccgg aggtcattac gtgcaaatgg ccatcatcaa gttaggggag cttactggca 3180
cctatgtgta taacctctc accctcttc gagactggc gcacaacggc ctgcgagatc 3240
tggccgtggc tgtggaacca gtcgtcttct cccgaatgga gaccaagctc atcacgtggg 3300
gggcagatac cgccgcgtgc ggtgacatca tcaacggctt gcccgctctt gcccgtaggg 3360
gccaggagat actgcttggg ccagccgacg gaatggtctc caaggggtgg aggttgctgg 3420
cgcccatcac ggcgtacgcc ggcgtacgcc caagtgtagg aggggtgata atcaccagcc 3480
tgactggccg ggaacaaaac caagtggagg gtgaggtcca gatcgtgtca actgctacc 3540
aaaccttccc ggcaacgtgc atcaatgggg tatgtggac tgtctaccac ggggcccggg 3600
cgaggaccat cgcatacccc aagggtcctg tcatccagat gtataccaat gtggaaccaag 3660
accttggtgg ctggcccgct cctcaaggtt cccgctcatt gacaccctgt acctgaggct 3720

```

2053293_1.TXT

cctcggacct	ttacctggtc	acgaggcacg	ccgatgtcat	tcccgtgcgc	cggcgaggtg	3780
atagcagggg	tagcctgctt	tcgccccggc	ccatttccta	cttgaaaggc	tcctcggggg	3840
gtccgctgtt	gtgccccgcg	ggacacgccg	tgggcctatt	cagggccgcg	gtgtgcaccc	3900
gtggagtggc	taaagcggtg	gactttatcc	ctgtggagaa	cctagggaca	accatgagat	3960
ccccggtgtt	cacggacaac	tcctctccac	cagcagtgcc	ccagagcttc	caggtggccc	4020
acctgcatgc	tcccacgggc	agcggtaaga	gcaccaaggt	cccggctgcg	tacgcagccc	4080
agggctacaa	ggtgttggtg	ctcaacccct	ctgttgctgc	aacgctgggc	tttgggtgctt	4140
acatgtccaa	ggcccatggg	gttgatccta	atatcaggac	cggggtgaga	acaattacca	4200
ctggcagccc	catcacgtac	tccacctacg	gcaagttcct	tgccgacggc	gggtgctcag	4260
gaggtgctta	tgacataata	atttgtgacg	agtgccactc	cacggatgcc	acatccatct	4320
tgggcatcgg	cactgtcctt	gaccaagcag	agactgcctc	ggcgagactg	gttgtgctcg	4380
ccactgctac	ccctccgggc	tccgtcactg	tgtcccattc	taacatcgag	gaggttgctc	4440
tgtccaccac	cggagagatc	ccctttttacg	gcaaggctat	ccccctcgag	gtgatcaagg	4500
ggggaagaca	tctcatcttc	tgccactcaa	agaagaagtg	cgacgagctc	gccgcgaagc	4560
tggctgcatt	gggcatcaat	gccgtggcct	actaccgcgg	tcttgacgtg	tctgtcatcc	4620
cgaccagcgg	cgatgttgct	gtcgtgtcga	cctgtgtctc	catgactggc	tttaccggcg	4680
acttcgactc	tgtgatagac	tgcaacacgt	gtgtcactca	gacagtcat	ttcagccttg	4740
accctacctt	taccattgag	acaaccacgc	tccccagga	tgctgtctcc	aggactcaac	4800
gccggggcag	gactggcagg	gggaagccag	gcatctatag	atttgtggca	ccgggggagc	4860
gccccctccg	catgttcgac	tcgtccgtcc	tctgtgagtg	ctatgacgcg	ggctgtgctt	4920
ggtatgagct	cacgcccggc	gagactacag	ttaggtacag	agcgtacatg	aacaccccgc	4980
ggcttcccgt	gtgccaggac	catcttgaat	tttgggagg	cgctctttacg	ggcctcactc	5040
atatagatgc	gcacttttta	tcccagacaa	agcagagtgg	ggagaacttt	ccttacctgg	5100
tagcgtacca	agccaccgtg	tgcgttaggg	ctcaagcccc	tcccccatcg	tgggaccaga	5160
tgtggaagtg	tttgatccgc	cttaaaccac	ccctccatgg	gccaacaccc	ctgtataaca	5220
gactgggcgc	tgttcagaat	gaagtcaccc	tgacgcaccc	aatcaccaaa	tacatcatga	5280
catgcatgtc	ggccgacctg	gaggtcgta	cgagcacctg	ggtgctcggt	ggcggcgctc	5340
tggctgctct	ggccgcgtat	tgccgtgcaa	caggctgcgt	ggtcatagtg	ggcaggatcg	5400
tcttgtccgg	gaagccggca	attataacctg	acagggaggt	tctctaccag	gagttcgatg	5460
agatggaaga	gtgtctctcag	cacttaccgt	acatcgagca	agggatgatg	ctcgctgagc	5520
agttcaagca	gaaggccctc	ggcctcctgc	agaccgcgtc	ccgccatgca	gaggttatca	5580
ccccctgctg	ccagaccaac	tggcagaaac	tcgaggtctt	ttgggcgaag	cacatgtgga	5640
atttcatcag	tgggatacaa	tacttggcgg	gcctgtcaac	gctgcctggg	aaccccgcga	5700
ttgcttcatt	gatggctttt	acagctgccg	taccagccc	actaaccact	ggccaaaccc	5760
tcctcttcaa	catattgggg	gggtgggtgg	ctgcccagct	cgccgcccc	ggtgccgcta	5820
ctgcctttgt	gggtgctggc	ctagctggcg	ccgccatcgg	cagcgttgga	ctggggaagg	5880
tcctcgtgga	cattcttgca	gggtatggcg	cgggcgtggc	gggagctctt	gtagcattca	5940
agatcatag	cggtgaggtc	ccctccacgg	aggacctgg	caatctgctg	cccgccatcc	6000
tctcgcctgg	agcccttgta	gtcgggtggg	tctgcgcagc	aatactgcgc	cggcacgttg	6060
gcccgggcga	gggggcagtg	caatggatga	accggcta	agccttcgcc	tcccggggga	6120
accatgtttc	ccccacgcac	tacgtgccgg	agagcgatgc	agccgcccgc	gtcactgcca	6180
tactcagcag	cctcactgta	acccagctcc	tgaggcgact	gcatacgtgg	ataagctcgg	6240
agtgtaccac	tccatgtctc	ggttcctggc	taagggacat	ctgggactgg	atatgcgagg	6300
tgttcatcga	ctttaagacc	tggctgaaag	ccaagctcat	gccacaactg	cctgggattc	6360
cccttgtgtc	ctgccagcgc	gggtataggg	gggtctggcg	aggagacggc	attatgcaca	6420
ctcgtgccca	ctgtggagct	gagatcactg	gacatgtcaa	aaacgggacg	atgaggatcg	6480
tcggtcctag	gacctgcagg	aacatgtgga	gtgggacgtt	ccccattaac	gcctacacca	6540
cgggccccctg	tactccccct	cctgcgcgca	actataagtt	cgcgctgtgg	aggggtgtctg	6600
cagaggaata	cgtggagata	aggcgggtgg	gggacttcca	ctacgtatcg	ggtatgacta	6660
ctgacaatct	taaatgcccc	tgccagatcc	catgcgccga	atttttcaca	gaattggacg	6720
gggtgcgcct	acacaggttt	gcgccccctt	gcaagccctt	gctgcgggag	gaggtatcat	6780
tcagagtagg	actccacgag	taccgggtgg	ggtcgcaatt	accttgcgag	cccgaaccgg	6840
acgtagccgt	gttgacgtcc	atgctcactg	atccctccca	tataacagca	gaggcgggcg	6900
ggagaaggtt	ggcgagaggg	tcacccccct	ctatggccag	ctcctcggct	agccagctgt	6960
ccgctccatc	tctcaaggca	acttgcaccg	ccaaccatga	ctccccctgac	gccgagctca	7020
tagaggctaa	cctcctgtgg	aggcaggaga	tgggcggcaa	catcaccagg	gttgagtcag	7080
agaacaaagt	ggtgattctg	gactccttcg	atccgcttgt	ggcagaggag	gatgagcggg	7140
aggtctccgt	acctgcagaa	attctgcgga	agtctcggag	attcgcccgg	gccctgcccg	7200
tctgggcgcg	gccggactac	aacccccgcg	tagtagagac	gtggaaaaag	cctgactacg	7260
aaccacactgt	ggtccatggc	tgcccgtcac	cacctccacg	gtccccctct	gtgcctcccg	7320
ctcggaaaaa	gcgtacggtg	gtcctcaccg	aatcaaccct	atctactgcc	ttggccgagc	7380
ttgccaccaa	aagttttggc	agctcctcaa	cttcggcat	tacgggcgac	aatacgacaa	7440
catcctctga	gcccccccc	tctggctgcc	cccccgactc	cgacgttgag	tcctattctt	7500

2053293_1.TXT

```

ccatgcccc  cctggagggg  gagcctgggg  atccggatct  cagcgacggg  tcatggtcga  7560
cggtcagtag  tggggccgac  acggaagatg  tcgtgtgctg  ctcaatgtct  tattcctgga  7620
caggcgact  cgtaccccc  tgcgtgctg  aagaacaaaa  actgcccata  aacgcactga  7680
gcaactcgtt  gctacgccat  cacaatctgg  tgtattccac  cacttcacgc  agtgcttgcc  7740
aaaggcagaa  gaaagtcaca  tttgacagac  tgcaagtctt  ggacagccat  taccaggacg  7800
tgctcaagga  ggtcaaagca  gcggcgtcaa  aagtgaaggc  taacttgcta  tccgtagagg  7860
aagcttgtag  cctgacgccc  ccacattcag  ccaaatccaa  gtttggttat  ggggcaaaa  7920
acgtccgttg  ccatgccaga  aaggccgtag  cccacatcaa  ctccgtgtgg  aaagaccttc  7980
tggaagacag  tgtaacacca  atagacacta  ccatcatggc  caagaacgag  gttttctgcg  8040
ttcagcctga  gaaggggggt  cgtaagccag  ctggtctcat  cgtgttcccc  gacctgggcg  8100
tgcgcggtg  cgagaagatg  gccctgtacg  acgtggttag  caagctcccc  ctggcgtga  8160
tggaagctc  ctacggattc  caatactcac  caggacagcg  ggttgaattc  ctctgcaag  8220
cgtggaagtc  caagaagacc  ccgatgggg  tctcgtatga  taccgcgtgt  tttgactcca  8280
cagtcactga  gagcgacatc  cgtacggagg  aggcaattta  ccaatgttgt  gacctggacc  8340
cccaagcccc  cgtggccatc  aagtcctc  ctgagaggct  ttatgttggg  ggccctctta  8400
ccaattcaag  gggggaaaa  tgccgctacc  cgagtgccg  cgcgagcggc  gtactgaca  8460
ctagctgtg  taacaccctc  acttgctaca  tcaaggcccg  ggcagcctgt  cgagccgag  8520
ggctccagga  ctgcaccatg  ctctgtgtg  gcgacgactt  agtcgttatc  tgtgaaagt  8580
cgggggtcca  ggaggacg  gcgagcctga  gagccttcac  ggaggctatg  accaggtact  8640
ccgccccccc  cggggacccc  ccacaaccag  aatacgactt  ggagcttata  acatcatgt  8700
cctccaacgt  gtcagtcgcc  cacgacggcg  ctggaagag  ggtctactac  cttaccgtg  8760
accctacaac  cccctcgcg  agagccgctg  gggagacagc  aagacacact  ccagtcaatt  8820
cctggctagg  caacataatc  atgtttgcc  ccacactgtg  ggcgaggatg  atactgatga  8880
cccatttctt  tagcgtctc  atagccagg  atcagcttga  acaggctctt  aactgtgaga  8940
tctacggagc  ctgctactcc  atagaaccac  tggatctacc  tccaatcatt  caaagactcc  9000
atggcctcag  cgcattttca  ctccacagtt  actctccagg  tgaaatcaat  aggggtggcg  9060
catgcctcag  aaaacttggg  gtcccgccct  tgcgagcttg  gagacaccgg  gcccgagcg  9120
tccgcgctag  gcttctgtcc  agaggaggca  gggctgccat  atgtggcaag  tacctcttca  9180
actgggcagt  aagaacaaag  ctcaaactca  ctccaatagc  ggccgctggc  cggtggact  9240
tgtccggttg  gttcacggct  ggctacagcg  ggggagacat  ttatcacagc  gtgtctcatg  9300
cccggccccg  ctggttctgg  ttttgcttac  tcctgctcgc  tgcaggggta  ggcattctacc  9360
tcctcccaa  ccgatgaagg  ttggggtaaa  cactccggcc  tcttaagcca  tttcctgttt  9420
ttttttttt  ttttttttt  ttttttttt  ttttttttt  tcctttcctt  ctttttttt  9480
tttcttttt  cttctttta  tgggtggctc  atcttagccc  tagtcacggc  tagctgtgaa  9540
aggtccgtga  gccgcatgac  tgcagagagt  gctgatactg  gcctctctgc  agatcatgt  9599

```

<210> 68
 <211> 3011
 <212> PRT
 <213> Hepatitis C Virus

```

<400> 68
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1      5      10      15
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20      25      30
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
35      40      45
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50      55      60
Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly
65      70      75      80
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp
85      90      95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro
100     105     110
Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
115     120     125
Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu
130     135     140
Gly Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145     150     155     160
Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile

```

2053293_1.TXT

				165					170					175					
Phe	Leu	Leu	Ala	Leu	Leu	Ser	Cys	Leu	Thr	Val	Pro	Ala	Ser	Ala	Tyr				
			180					185					190						
Gln	Val	Arg	Asn	Ser	Ser	Gly	Leu	Tyr	His	Val	Thr	Asn	Asp	Cys	Pro				
		195					200					205							
Asn	Ser	Ser	Ile	Val	Tyr	Glu	Ala	Ala	Asp	Ala	Ile	Leu	His	Thr	Pro				
	210					215					220								
Gly	Cys	Val	Pro	Cys	Val	Arg	Glu	Gly	Asn	Ala	Ser	Arg	Cys	Trp	Val				
225					230					235					240				
Ala	Val	Thr	Pro	Thr	Val	Ala	Thr	Arg	Asp	Gly	Lys	Leu	Pro	Thr	Thr				
				245					250					255					
Gln	Leu	Arg	Arg	His	Ile	Asp	Leu	Leu	Val	Gly	Ser	Ala	Thr	Leu	Cys				
			260					265					270						
Ser	Ala	Leu	Tyr	Val	Gly	Asp	Leu	Cys	Gly	Ser	Val	Phe	Leu	Val	Gly				
	275						280					285							
Gln	Leu	Phe	Thr	Phe	Ser	Pro	Arg	His	Trp	Thr	Thr	Gln	Asp	Cys					
	290					295					300								
Asn	Cys	Ser	Ile	Tyr	Pro	Gly	His	Ile	Thr	Gly	His	Arg	Met	Ala	Trp				
305					310					315				320					
Asp	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Ala	Ala	Leu	Val	Val	Ala	Gln				
				325					330					335					
Leu	Leu	Arg	Ile	Pro	Gln	Ala	Ile	Met	Asp	Met	Ile	Ala	Gly	Ala	His				
			340					345					350						
Trp	Gly	Val	Leu	Ala	Gly	Ile	Ala	Tyr	Phe	Ser	Met	Val	Gly	Asn	Trp				
	355						360						365						
Ala	Lys	Val	Leu	Val	Val	Leu	Leu	Phe	Ala	Gly	Val	Asp	Ala	Glu					
	370					375													
Thr	His	Val	Thr	Gly	Gly	Asn	Ala	Gly	Arg	Thr	Thr	Ala	Gly	Leu	Val				
385					390					395				400					
Gly	Leu	Leu	Thr	Pro	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	Asn	Thr				
				405					410					415					
Asn	Gly	Ser	Trp	His	Ile	Asn	Ser	Thr	Ala	Leu	Asn	Cys	Asn	Glu	Ser				
			420					425					430						
Leu	Asn	Thr	Gly	Trp	Leu	Ala	Gly	Leu	Phe	Tyr	Gln	His	Lys	Phe	Asn				
			435				440					445							
Ser	Ser	Gly	Cys	Pro	Glu	Arg	Leu	Ala	Ser	Cys	Arg	Arg	Leu	Thr	Asp				
	450					455					460								
Phe	Ala	Gln	Gly	Trp	Gly	Pro	Ile	Ser	Tyr	Ala	Asn	Gly	Ser	Gly	Leu				
465					470					475				480					
Asp	Glu	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Pro	Pro	Arg	Pro	Cys	Gly	Ile				
				485					490					495					
Val	Pro	Ala	Lys	Ser	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr	Pro	Ser				
			500						505				510						
Pro	Val	Val	Gly	Thr	Thr	Asp	Val	Phe	Val	Leu	Asn	Asn	Thr	Arg	Pro				
	515					520					525								
Trp	Gly	Ala	Asn	Asp	Thr	Asp	Val	Phe	Val	Leu	Asn	Asn	Thr	Arg	Pro				
	530					535					540								
Pro	Leu	Gly	Asn	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Thr	Gly	Phe				
545					550					555				560					
Thr	Lys	Val	Cys	Gly	Ala	Pro	Pro	Cys	Val	Ile	Gly	Gly	Val	Gly	Asn				
				565					570					575					
Asn	Thr	Leu	Leu	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys	His	Pro	Glu	Ala				
			580					585					590						
Thr	Tyr	Ser	Arg	Cys	Gly	Ser	Gly	Pro	Trp	Ile	Thr	Pro	Arg	Cys	Met				
			595				600						605						
Val	Asp	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys	Thr	Ile	Asn	Tyr				
	610					615						620							
Thr	Ile	Phe	Lys	Val	Arg	Met	Tyr	Val	Gly	Gly	Val	Glu	His	Arg	Leu				
625					630					635					640				
Glu	Ala	Ala	Cys	Asn	Trp	Thr	Arg	Gly	Glu	Arg	Cys	Asp	Leu	Glu	Asp				
				645					650					655					
Arg	Asp	Arg	Ser	Glu	Leu	Ser	Pro	Leu	Leu	Leu	Ser	Thr	Thr	Gln	Trp				
			660					665					670						

2053293_1.TXT

Gln Val Leu Pro Cys Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr Gly
 675 680 685
 Leu Ile His Leu His Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr Gly
 690 695 700
 Val Gly Ser Ser Ile Ala Ser Trp Ala Ile Lys Trp Glu Tyr Val Val
 705 710 715 720
 Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Val Cys Ser Cys Leu Trp
 725 730 735
 Met Met Leu Leu Ile Ser Gln Ala Glu Ala Ala Leu Glu Asn Leu Val
 740 745 750
 Ile Leu Asn Ala Ala Ser Leu Ala Gly Thr His Gly Leu Val Ser Phe
 755 760 765
 Leu Val Phe Phe Cys Phe Ala Trp Tyr Leu Lys Gly Arg Trp Val Pro
 770 775 780
 Gly Ala Val Tyr Ala Leu Tyr Gly Met Trp Pro Leu Leu Leu Leu
 785 790 795 800
 Leu Ala Leu Pro Gln Arg Ala Tyr Ala Leu Asp Thr Glu Val Ala Ala
 805 810 815
 Ser Cys Gly Gly Val Val Leu Val Gly Leu Met Ala Leu Thr Leu Ser
 820 825
 Pro Tyr Tyr Lys Arg Tyr Ile Ser Trp Cys Met Trp Trp Leu Gln Tyr
 835 840 845
 Phe Leu Thr Arg Val Glu Ala Gln Leu His Val Trp Val Pro Pro Leu
 850 855 860
 Asn Val Arg Gly Gly Arg Asp Ala Val Ile Leu Leu Met Cys Val Val
 865 870 875 880
 His Pro Thr Leu Val Phe Asp Ile Thr Lys Leu Leu Leu Ala Ile Phe
 885 890 895
 Gly Pro Leu Trp Ile Leu Gln Ala Ser Leu Leu Lys Val Pro Tyr Phe
 900 905 910
 Val Arg Val Gln Gly Leu Leu Arg Ile Cys Ala Leu Ala Arg Lys Ile
 915 920 925
 Ala Gly Gly His Tyr Val Gln Met Ala Ile Ile Lys Leu Gly Ala Leu
 930 935 940
 Thr Gly Thr Tyr Val Tyr Asn His Leu Thr Pro Leu Arg Asp Trp Ala
 945 950 955 960
 His Asn Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Val Phe
 965 970 975
 Ser Arg Met Glu Thr Lys Leu Ile Thr Trp Gly Ala Asp Thr Ala Ala
 980 985 990
 Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg Gly Gln
 995 1000 1005
 Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly Trp Arg
 1010 1015 1020
 Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly Leu Leu
 1025 1030 1035 1040
 Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu
 1045 1050 1055
 Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr
 1060 1065 1070
 Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg
 1075 1080 1085
 Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val
 1090 1095 1100
 Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu
 1105 1110 1115 1120
 Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His
 1125 1130 1135
 Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu
 1140 1145 1150
 Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro
 1155 1160 1165
 Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val

2053293_1.TXT

1170 1175 1180
 Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn
 1185 1190 1195 1200
 Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro
 1205 1210 1215
 Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr
 1220 1225 1230
 Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly
 1235 1240 1245
 Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe
 1250 1255 1260
 Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr
 1265 1270 1275 1280
 Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr
 1285 1290 1295
 Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile
 1300 1305 1310
 Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly
 1315 1320 1325
 Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val
 1330 1335 1340
 Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Ser His Pro
 1345 1350 1355 1360
 Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr
 1365 1370 1375
 Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile
 1380 1385 1390
 Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val
 1395 1400 1405
 Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser
 1410 1415 1420
 Val Ile Pro Thr Ser Gly Asp Val Val Val Val Ser Thr Asp Ala Leu
 1425 1430 1435 1440
 Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr
 1445 1450 1455
 Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile
 1460 1465 1470
 Glu Thr Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg
 1475 1480 1485
 Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro
 1490 1495 1500
 Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys
 1505 1510 1515 1520
 Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr
 1525 1530 1535
 Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln
 1540 1545 1550
 Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile
 1555 1560 1565
 Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu Asn Phe Pro
 1570 1575 1580
 Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro
 1585 1590 1595 1600
 Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro
 1605 1610 1615
 Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln
 1620 1625 1630
 Asn Glu Val Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Thr Cys
 1635 1640 1645
 Met Ser Ala Asp Leu Glu Val Val Thr Ser Thr Trp Val Leu Val Gly
 1650 1655 1660
 Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser Thr Gly Cys Val
 1665 1670 1675 1680

2053293_1.TXT

Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro Ala Ile Ile Pro
 1685 1690 1695
 Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu Cys Ser
 1700 1705 1710
 Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala Glu Gln Phe
 1715 1720 1725
 Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala Ser Arg His Ala Glu
 1730 1735 1740
 Val Ile Thr Pro Ala Val Gln Thr Asn Trp Gln Lys Leu Glu Val Phe
 1745 1750 1755 1760
 Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala
 1765 1770 1775
 Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Ile Ala Ser Leu Met Ala
 1780 1785 1790
 Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly Gln Thr Leu Leu
 1795 1800 1805
 Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu Ala Ala Pro Gly
 1810 1815 1820
 Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly
 1825 1830 1835 1840
 Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly
 1845 1850 1855
 Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu
 1860 1865 1870
 Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser
 1875 1880 1885
 Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg
 1890 1895 1900
 His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile
 1905 1910 1915 1920
 Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
 1925 1930 1935
 Glu Ser Asp Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr
 1940 1945 1950
 Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
 1955 1960 1965
 Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
 1970 1975 1980
 Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met
 1985 1990 1995 2000
 Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg
 2005 2010 2015
 Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly
 2020 2025 2030
 Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly
 2035 2040 2045
 Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala
 2050 2055 2060
 Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn Tyr Lys Phe
 2065 2070 2075 2080
 Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile Arg Arg Val
 2085 2090 2095
 Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn Leu Lys Cys
 2100 2105 2110
 Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu Asp Gly Val
 2115 2120 2125
 Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu Arg Glu Glu
 2130 2135 2140
 Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly Ser Gln Leu
 2145 2150 2155 2160
 Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser Met Leu Thr
 2165 2170 2175
 Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg Leu Ala Arg

2053293_1.TXT

2180 2185 2190
 Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser Gln Leu Ser Ala
 2195 2200 2205
 Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp Ser Pro Asp Ala
 2210 2215 2220
 Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met Gly Gly Asn
 2225 2230 2235 2240
 Ile Thr Arg Val Glu Ser Glu Asn Lys Val Val Ile Leu Asp Ser Phe
 2245 2250 2255
 Asp Pro Leu Val Ala Glu Glu Asp Glu Arg Glu Val Ser Val Pro Ala
 2260 2265 2270
 Glu Ile Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala Leu Pro Val Trp
 2275 2280 2285
 Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr Trp Lys Lys Pro
 2290 2295 2300
 Asp Tyr Glu Pro Pro Val Val His Gly Cys Pro Leu Pro Pro Pro Arg
 2305 2310 2315 2320
 Ser Pro Pro Val Pro Pro Pro Arg Lys Lys Arg Thr Val Val Leu Thr
 2325 2330 2335
 Glu Ser Thr Leu Ser Thr Ala Leu Ala Glu Leu Ala Thr Lys Ser Phe
 2340 2345 2350
 Gly Ser Ser Thr Ser Gly Ile Thr Gly Asp Asn Thr Thr Thr Ser
 2355 2360 2365
 Ser Glu Pro Ala Pro Ser Gly Cys Pro Pro Asp Ser Asp Val Glu Ser
 2370 2375 2380
 Tyr Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly Asp Pro Asp Leu
 2385 2390 2395 2400
 Ser Asp Gly Ser Trp Ser Thr Val Ser Ser Gly Ala Asp Thr Glu Asp
 2405 2410 2415
 Val Val Cys Cys Ser Met Ser Tyr Ser Trp Thr Gly Ala Leu Val Thr
 2420 2425 2430
 Pro Cys Ala Ala Glu Glu Gln Lys Leu Pro Ile Asn Ala Leu Ser Asn
 2435 2440 2445
 Ser Leu Leu Arg His His Asn Leu Val Tyr Ser Thr Thr Ser Arg Ser
 2450 2455 2460
 Ala Cys Gln Arg Gln Lys Lys Val Thr Phe Asp Arg Leu Gln Val Leu
 2465 2470 2475 2480
 Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys Ala Ala Ala Ser
 2485 2490 2495
 Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser Leu Thr
 2500 2505 2510
 Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val
 2515 2520 2525
 Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn Ser Val Trp Lys
 2530 2535 2540
 Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala
 2545 2550 2555 2560
 Lys Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro
 2565 2570 2575
 Ala Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys
 2580 2585 2590
 Met Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly
 2595 2600 2605
 Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu
 2610 2615 2620
 Val Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp
 2625 2630 2635 2640
 Thr Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu
 2645 2650 2655
 Glu Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala
 2660 2665 2670
 Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn
 2675 2680 2685

2053293_1.TXT

Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val
 2690 2695 2700
 Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg
 2705 2710 2715 2720
 Ala Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys
 2725 2730 2735
 Gly Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp
 2740 2745 2750
 Ala Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala
 2755 2760 2765
 Pro Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr
 2770 2775 2780
 Ser Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg
 2785 2790 2795 2800
 Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala
 2805 2810 2815
 Trp Glu Thr Ala Arg His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile
 2820 2825 2830
 Ile Met Phe Ala Pro Thr Leu Trp Ala Arg Met Ile Leu Met Thr His
 2835 2840 2845
 Phe Phe Ser Val Leu Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn
 2850 2855 2860
 Cys Glu Ile Tyr Gly Ala Cys Tyr Ser Ile Glu Pro Leu Asp Leu Pro
 2865 2870 2875 2880
 Pro Ile Ile Gln Arg Leu His Gly Leu Ser Ala Phe Ser Leu His Ser
 2885 2890 2895
 Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu
 2900 2905 2910
 Gly Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg
 2915 2920 2925
 Ala Arg Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr
 2930 2935 2940
 Leu Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile Ala
 2945 2950 2955 2960
 Ala Ala Gly Arg Leu Asp Leu Ser Gly Trp Phe Thr Ala Gly Tyr Ser
 2965 2970 2975
 Gly Gly Asp Ile Tyr His Ser Val Ser His Ala Arg Pro Arg Trp Phe
 2980 2985 2990
 Trp Phe Cys Leu Leu Leu Leu Ala Ala Gly Val Gly Ile Tyr Leu Leu
 2995 3000 3005
 Pro Asn Arg
 3010

<210> 69
 <211> 9596
 <212> DNA
 <213> Hepatitis C virus

<400> 69
 gccagccccc tgatgggggc gacactccac catgaatcac tcccctgtga ggaactactg 60
 tcttcacgca gaaagcgtct agccatggcg ttagtatgag tgtcgtgcag cctccaggac 120
 cccccctccc gggagagcca tagtgggtctg cggaaccggt gagtacaccg gaattgccag 180
 gacgaccggg tcctttcttg gatcaaacc gctcaatgcc tggagatttg ggcgtgcccc 240
 cgcgagactg ctagccgagt agtgttgggt cgcgaaaggc cttgtggtac tgcctgatag 300
 ggtgcttgcg agtgccccgg gaggtctcgt agaccgtgca ccatgagcac gaatcctaaa 360
 cctcaaagaa aaaccaaag taacaccaac cgccgcccac aggacgtcaa gttcccgggc 420
 ggtggtcaaa tcgttggttg agtttacctg ttgccgcgca ggggccccag gttgggtgtg 480
 cgcgcgacta ggaagacttc cgagcggctg caacctcgtg gaaggcgaca acctatccca 540
 aaggctcgcc gacccgaggg cagggcctgg gctcagcccg ggtacccttg gccctctat 600
 ggcaatgagg gcttggggtg ggcaggatgg ctctgtcac cccgcggctc ccggcctagt 660
 tggggcccca cggacccccg gcgtaggtcg cgtaacttgg gtaaggctcat cgataccctt 720
 acatgcggct tcgccgatct catggggtac attccgctcg tcggcgcccc cctagggggc 780

2053293_1.TXT

```

gctgccaggg ccttggcaca cgggtgtccgg gttcttggagg acggcgtgaa ctatgcaaca 840
gggaacttgc ccggttgctc tttctctatc ttcctcttgg ctctgctgtc ctgtttgacc 900
atcccagctt ccgcttatga agtgcgcaac gtgtccggga tataccatgt cacgaacgac 960
tgctccaact caagcattgt gtatgaggca gcgagcgtga tcatgcatac tcccgggtgc 1020
gtgccctgtg ttcgggaggg caacagctcc cgttgctggg tagcgctcac tcccacgctc 1080
gcgccagag atgcccagct cccactacg acaatacgac gccacgtcga cttgctcgtt 1140
gggacggctg ctttctgtct cgctatgtac gtgggggatc tctgcggatc tattttcctc 1200
gtctcccagc tgttcacctt ctgcctcgc cggcatgaga cagtgcagga ctgcaactgc 1260
tcaatctatc ccggccatgt atcaggtcac cgcattggctt gggatatgat gatgaactgg 1320
tcacctacaa cagcccctagt ggtgtcgcag ttgctccgga tcccacaagc tgtcgtggac 1380
atgggtggcg gggcccactg gggagtcctg cggggccttg cctactattc catggtaggg 1440
aactgggcta aggttctgat tgtggcgcta ctctttgccc gcgttgacgg ggagaccac 1500
acgacgggga ggggtggtcgg ccgcaccacc tccgggttta cgtccctttt ctcatctggg 1560
gcgtctcaga aaatccagct tgtgaatacc aacggcagct ggcacatcaa caggactgct 1620
ctaaattgca atgactccct ccagactggg ttccttgccc cgctgttcta cacacacaag 1680
ttcaactcgc ccgggtgccc ggagcgcctg gccagctgcc gccccattga ctggttcgct 1740
caggggtggg gcccctcac ctatactgag cctaacagct cggatcagag gccttattgc 1800
tggcattacg cgcctcgacc gtgtggtatc gtaccgcgt cgaggtgtg tggccagtg 1860
tattgtttca ccccaagccc tgttgtggtg gggaccaccg atcgttccgg tgtccctacg 1920
tatactggtg gggagaatga gacagacgtg atgtctctga acaacacgg tccgccaca 1980
ggcaactggt tcggctgtac atggatgaat agtactgggt tcactaagac gtgcggaggc 2040
ccccctgctt acatcgggg ggtcggtaac cgcaccttga tctgccccac ggactgtctt 2100
cggaagcacc ccgaggctac ttacacaaaa tgtggctcgg ggccctggtt gacacctagg 2160
tgcctagtag actaccata caggctctgg cactaccct gcacctcaa tttttccatc 2220
tttaaggtta ggatgtatgt ggggggctg gagcacaggc tcaatgccgc atgcaattgg 2280
actcgaggag agcgtgtgaa cttggaggac agggataggt cagaactcag cccgctgctg 2340
ctgtctacaa cagagtggca gatactgcc ttgtccttca ccacctacc ggctttatcc 2400
actggtttga tccatctcca tcagaacatc gtggacgtgc aatacctgta cgggtgtagg 2460
tcagcgtttg tctcctttgc aatcaaattg gagtacatcc tgttgctttt ccttctcctg 2520
gcagacgcgc gagtgtgtgc ctgcttgtgg atgatgctgc tgatagccca ggctgaggcc 2580
gccttagaga acttgggtgg cctcaatgcg gcgtccgtgg ccggagcgca tggattctc 2640
tcctttcttg tgttcttctg cgccgcctgg tacattaagg gcaggctggc tcctggggcg 2700
gcgtatgctt atggcgcgtg atggcgcctg ctctgtccc tactggcggt accaccaga 2760
gcttacgcct tggaccggga gatggctgca tcgtgcgggg gtgcggttct tgtaggctct 2820
gtattcttga cttatcacc atactacaaa gtgtttctca ctaggctcat atggtggtta 2880
caatacttta tcaccagagc cgaggcgcac atgcaagtgt ggggtcccc cctcaacgtt 2940
cggggaggcc gcgatgccat acgtgtgcgg ttcatccaga gttaatttt 3000
gacatcacca aactcctgct gcgcatactc gggcgcctca tgggtgtcca ggctggcata 3060
acgagatgac cgtacttctg gcgcgtcaa gggctcattc gtgcatgcat gttagtgcga 3120
aaagtgcgg ggggtcatta tgtccaaatg gccttcatga agctgggccc gctgacaggt 3180
acgtacgttt ataaccatct cgggactggg cccacgcggg cctacgagac gctgacaggt 3240
cttgcgggtg cggtagagcc cgtcgtcttc tccgccatgg agaccaaggt catcacctgg 3300
ggagcagaca ccgtgcgtg tggggacatc atcttgggtc taccgctctc cgccgaagg 3360
gggaaggaga tattttggg accggctgat agtctcgaag ggcaagggtg ggcactcctt 3420
gcgcccata cggcctactc ccaacaaacg cggggcgtac ttggttgcgt catcactagc 3480
ctcacaggcc gggacaagaa ccaggtcgaa ggggaggttc aagtggtttc taccgcaaca 3540
caatctttcc tggcgacctg catcaacggc gtgtgctgga ctgtctacca tggcgctggc 3600
tcaaagacc tagccggtcc aaaaggtcca atcacccaaa tgtacaccaa tgtagacctg 3660
gacctcgtcg gctggcaggc gcccccggg gcgcgtcca tgacaccatg agctgtggc 3720
agctcggacc tttacttggg cagagacat gctgatgtca tcccgggtgc ccggcgaggc 3780
gacagcaggg ggagtctact ctccccagg cccgtctcct acctgaaggg ctctcgggt 3840
ggtcctttgc tttgcccttc ggggcacgtc gtgggcgtct tccgggctgc tgtgtgcacc 3900
cggggggtcg cgaaggcggg ggacttcata cccgttgagt ctatggaaac taccatgcgg 3960
tctccggtct tcacagacaa ctcatcccc ccggctgtac cgcagacatt ccaagtggca 4020
catctgcacg ctctactgg cagcggcaag agcaccaaag tgccggctgc gtatgcagcc 4080
caagggtaca aggtgctcgt cctgaatccg tccgttgcgg ccaccttagg gtttggggcg 4140
tatatgtcca aggcacacgg tatcgacct aacatcagaa ctggggtaag gaccattacc 4200
acgggcggct ccattacgta ctccacctat ggcaagttcc ttgccgacgg tggctgctcc 4260
gggggcgcct atgacatcat aatatgtgat gagtgcact caactgactc gactaccatc 4320
ttgggcattg gacagtcct ggaccaagcg gagcggctg gagcgcggct tgtcgtgctc 4380
gccaccgcta ccctccggg atcggttacc gtgccacacc ccaatatcga ggaaataggc 4440
ctgtccaaca atggagagat ccccttctat ggcaaagcca tccccattga ggccatcaag 4500
ggggggaggc atctcathtt ctgccattcc aagaagaaat gtgacgagct cgccgcaaag 4560

```

2053293_1.TXT

ctgacaggcc	tcggactgaa	cgctgtagca	tattaccggg	gccttgatgt	gtccgctcata	4620
ccgcctatcg	gagacgtcgt	tgctgtggca	acagacgctc	taatgacggg	tttcaccggc	4680
gattttgact	cagtgatcga	ctgcaataca	tgtgtcactc	agacagtcga	cttcagcttg	4740
gatcccacct	tcaccattga	gacgacgacc	gtgccccaa	acgcggtgtc	gcgctcgcaa	4800
cggcgaggta	gaactggcag	gggtaggagt	ggcatctaca	ggtttgtgac	tccaggagaa	4860
cggccctcgg	gcatgttcga	ttcttcggtc	ctgtgtgagt	gctatgacgc	gggctgtgct	4920
tggcatgagc	tcacgcccgc	tgagacctcg	gttaggttgc	gggcttacct	aaatacacca	4980
ggattgccc	tctgccagga	ccatctggag	ttctgggaga	gcgtcttcac	aggcctcacc	5040
cacatagatg	cccacttcct	gtcccagact	aaacaggcag	gagacaactt	tccttacctg	5100
gtggcatatc	aagctacagt	gtgcgccagg	gctcaagctc	cacctccatc	gtgggaccaa	5160
atgtggaagt	gtctcatacg	gtgaaaacct	acactgcacg	ggccaacacc	cctgctgtat	5220
aggctaggag	ccgtccaaaa	tgaggctcatc	ctcacacacc	ccataactaa	atacatcatg	5280
gcatgcatgt	cggctgacct	ggaggtcgtc	actagcacct	gggtgctggt	gggcggagtc	5340
cttgacagctt	tggccgcata	ctgcctgacg	acaggcagtg	tggctattgt	gggcaggatc	5400
atcttgtccg	ggaagccagc	tgctgttccc	gacagggaa	tcctctacca	ggagttcgat	5460
gagatggaag	agtgtgcctc	acaacttcct	tacatcgagc	agggaaatgca	gctcgccgag	5520
caatttaagc	agaaggcgct	cggattgttg	caaacggcca	ccaagcaagc	ggaggctgct	5580
gctcccgtgg	tggagtccaa	gtggcgagcc	ctcgagacct	tctgggcgaa	gcacatgtgg	5640
aatttcatca	gcggaataca	gtacctagca	ggcttatcca	ctctgcctgg	aaaccccgcg	5700
atagcatcat	tgatggcatt	tacagcttct	atcactagcc	cgctcaccac	ccaaaacacc	5760
tcctgtttta	acatcttggg	gggatgggtg	gctgcccac	tcgctcctcc	cagcgctgag	5820
ctcagctttcg	tgggcgccgg	catcgccgga	cggctgtttg	gcagcatagg	ccttggggag	5880
gtgctcgtgg	acatcctggc	gggctatggg	gcgggggtag	ccggcgact	cgtggccttt	5940
aaggctcatga	gcggcgaggt	gccctccacc	gaggacctgg	tcaacttact	ccctgccatc	6000
ctctctcctg	gtgccctggt	cgctcggggtc	gtgtgcgcag	caatactgcg	ccggcacgtg	6060
ggcccgggag	agggggctgt	gcagtggatg	aaccggctga	tagcgttcgc	ttcgcggggt	6120
aaccacgtct	ccccacgca	ctatgtgcct	gagagcgacg	ctgcagcacg	tgtcactcag	6180
atcctcccta	gccttaccat	cactcaactg	ctgaagcggc	ttcaccagtg	gattaatgag	6240
gactgctcta	cgccatgctc	cggctcgtgg	ctaagggatg	tttgggattg	gatatgcacg	6300
gtgttgactg	acttcaagac	ctggctccag	tccaagctcc	tgccgcggtt	accgggagtc	6360
cctttcctgt	catgccaacg	cgggtacaag	ggagtctggc	ggggggacgg	catcatgcaa	6420
accacctgcc	catgtggagc	acagatcgcc	ggacatgtca	aaaacggttc	catgaggatc	6480
atagggccta	ggacgtcgag	caacacgtgg	cacggaacgt	tccccatcaa	cgcatacacc	6540
acgggacctt	gcacaccttc	ccggcgcccc	aactattcca	gggcgctatg	gcgggtggct	6600
gctgaggagt	acgtggaggt	tacgcgtgtg	ggggatttcc	actacgtgac	gggcatgacc	6660
actgacaacg	taaagtggcc	atgccaggtt	ccggccccc	aattcttcac	ggagggtgat	6720
ggagtgcggt	tgcacaggta	cgctccggcg	tgcagacctc	tcctacggga	ggacgtcacg	6780
ttccaggctg	ggctcaacca	atacttggtc	gggtcgagc	tcccatgcca	gcccgaaccg	6840
gacgtaacag	tgcttacttc	catgctcacc	gtacctccc	acattacagc	agagacggct	6900
aagcgtaggc	tggctagagg	gtctcccccc	tcttttagcca	gctcatcagc	tagccagttg	6960
tctgcgcctt	ctttgaaggc	gacatgcact	acccaccatg	actccccgga	cgctgacctc	7020
atcgaggcca	acctcttgtg	gcggcaggag	atgggcggaa	acatcactcg	cgtggagtca	7080
gagaataagg	tagtaattct	ggactctttc	gaaccgcttc	acgcggaggg	ggatgagagg	7140
gagatatccg	tcgcggcgga	gacctcgga	aaatccagga	agttccccctc	agcgttgccc	7200
atatgggcac	gcccggaacta	caatcctcca	ctgttagagt	cctggaagga	cccggactac	7260
gtccctccgg	tggtagacgg	atgcccattg	ccacctacca	aggctcctcc	aataccacct	7320
ccacggagaa	agaggacggt	tgctcctgaca	gaatccaatg	tgtcttctgc	cttggcggag	7380
ctcgccacta	agaccttcgg	tagctccgga	tcgtcgggcg	tcgatagcgg	cacggcgacc	7440
gccccttcctg	acctggcctc	cgacgacggt	gacaaaaggat	ccgacgttga	gtcgactctc	7500
tccatgcccc	cccttgaagg	ggagccgggg	gaccccgatc	tcagcgacgg	gtcttggctc	7560
accgtgagtg	aggaggctag	tgaggacgtc	gtctgtgtgt	caatgtccta	tacgtggaca	7620
ggcgccctga	tcacgccatg	cgctgcggag	gaaagtaagc	tgcccatcaa	cccgttgagc	7680
aactctttgc	tgcgtcacca	caacatggtc	tacgccacaa	catcccgcag	cgcaagcctc	7740
cggcagaaga	aggtcacctt	tgacagattg	caagtccctg	acgaccatta	cgggagcgtg	7800
ctcaaggaga	tgaaggcgaa	ggcgctccaca	gttaaggcta	agcttctatc	tatagaggag	7860
gcctgcaagc	tgacgcccc	acattcggcc	aaatccaaat	ttggctatgg	ggcaaaggac	7920
gtccggaacc	tatccagcag	ggccgttaac	cacatccgct	ccgtgtggga	ggacttgctg	7980
gaagacactg	aaacaccaat	tgacaccacc	atcatggcaa	aaagtgaggt	tttctgcgtc	8040
caaccagaga	agggaggccg	caagccagct	cgccttatcg	tattcccaga	cctgggagtt	8100
cgtgtatgcg	agaagatggc	cctttacgac	gtggtctcca	cccttcctca	ggcgtgatg	8160
ggctcctcat	acggatttca	atactcccc	acgagcggg	tcgagttcct	ggtgaatacc	8220
tggaaatcaa	agaaatggcc	tatgggcttc	tcatatgaca	ctcgctgttt	tgactcaacg	8280
gtcaccgaga	gtgacattcg	tgttgaggag	tcaatttacc	aatgttgtga	cttggccccc	8340

2053293_1.TXT

```

gagggccagac agggccataag gtcgctcaca gagcggccttt acatcggggg tcccctgact 8400
aactcaaaag ggcagaactg cgggttatcgc cgggtgccgcg caagtggcgt gctgacgact 8460
agctgcggtta ataccctcac atgttacttg aaggccactg cggcctgtcg agctgcaaag 8520
ctccaggact gcacgatgct cgtgaacgga gacgaccttg tcgttatctg tgaaagcgcg 8580
ggaacccagg aggatgcggc ggcctacga gccttcacgg aggctatgac taggtattcc 8640
gcccccccg gggatccgcc ccaaccagaa tacgacctgg agctgataac atcatgttcc 8700
tccaatgtgt cagtcgcgca cgatgcatcc ggcaaaaggg tatactacct caccctgac 8760
cccaccaccc cccttgacg ggctgcgtgg gagacagcta gacacactcc aatcaactct 8820
tggctaggca atatcatcat gtatgcgccc accctatggg caaggatgat tctgatgact 8880
cactttttct ccattccttct agctcaagag caacttgaaa aagccctgga ttgtcagatc 8940
tacggggcctt gctactccat tgagccactt gacctacctc agatcattga acgactccat 9000
ggtccttagcg catttacact ccacagttac tctccagggt agatcaatag ggtggcttca 9060
tgcctcagga aacttggggg accacccttg cgaacctgga gacatcgggc cagaagtgtc 9120
cgcgctaagc tactgtccca gggggggagg gccgccactt gtggcagata cctctttaac 9180
tgggcagtaa ggaccaagct taaactcact ccaatcccgg ccgctgccc gctggacttg 9240
tctggctggt tcgtgcgtgg ttacagcggg ggagacatat atcacagcct gtctcgtgcc 9300
cgaccccgct gggttccgtt gtgcctactc ctactttctg taggggtagg catttacctg 9360
ctccccaacc gatgaacggg gagctaacca ctccaggcct taagccattt cctgtttttt 9420
tttttttttt tttttttttt ttcttttttt ttttctttcc tttccttctt tttttccttt 9480
ctttttccct tctttaatgg tggctccatc ttagccctag tcacggctag ctgtgaaagg 9540
tccgtgagcc gcatgactgc agagagtgtc gatactggcc tctctgcaga tcatgt 9596

```

<210> 70

<211> 3010

<212> PRT

<213> Hepatitis C virus

<400> 70

```

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
 1          5          10          15
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20          25          30
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
 35          40          45
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50          55          60
Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Ala Trp Ala Gln Pro Gly
 65          70          75          80
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Leu Gly Trp Ala Gly Trp
 85          90          95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro
100          105          110
Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
115          120          125
Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu
130          135          140
Gly Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145          150          155          160
Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
165          170          175
Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Ile Pro Ala Ser Ala Tyr
180          185          190
Glu Val Arg Asn Val Ser Gly Ile Tyr His Val Thr Asn Asp Cys Ser
195          200          205
Asn Ser Ser Ile Val Tyr Glu Ala Ala Asp Val Ile Met His Thr Pro
210          215          220
Gly Cys Val Pro Cys Val Arg Glu Gly Asn Ser Ser Arg Cys Trp Val
225          230          235          240
Ala Leu Thr Pro Thr Leu Ala Ala Arg Asp Ala Ser Val Pro Thr Thr
245          250          255
Thr Ile Arg Arg His Val Asp Leu Leu Val Gly Thr Ala Ala Phe Cys
260          265          270
Ser Ala Met Tyr Val Gly Asp Leu Cys Gly Ser Ile Phe Leu Val Ser

```

		275					280				285				
Gln	Leu	Phe	Thr	Phe	Ser	Pro	Arg	Arg	His	Glu	Thr	Val	Gln	Asp	Cys
Asn	Cys	Ser	Ile	Tyr	Pro	Gly	His	Val	Ser	Gly	His	Arg	Met	Ala	Trp
305					310					315					320
Asp	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Thr	Ala	Leu	Val	Val	Ser	Gln
				325						330				335	
Leu	Leu	Arg	Ile	Pro	Gln	Ala	Val	Val	Asp	Met	Val	Ala	Gly	Ala	His
			340										350		
Trp	Gly	Val	Leu	Ala	Gly	Leu	Ala	Tyr	Tyr	Ser	Met	Val	Gly	Asn	Trp
		355													
Ala	Lys	Val	Leu	Ile	Val	Ala	Leu	Leu	Phe	Ala	Gly	Val	Asp	Gly	Glu
	370					375					380				
Thr	His	Thr	Thr	Gly	Arg	Val	Val	Gly	Arg	Thr	Thr	Ser	Gly	Phe	Thr
385					390					395					400
Ser	Leu	Phe	Ser	Ser	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	Asn	Thr
				405					410					415	
Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	Ser
			420					425					430		
Leu	Gln	Thr	Gly	Phe	Leu	Ala	Ala	Leu	Phe	Tyr	Thr	His	Lys	Phe	Asn
		435					440					445			
Ser	Pro	Gly	Cys	Pro	Glu	Arg	Met	Ala	Ser	Cys	Arg	Pro	Ile	Asp	Trp
	450					455					460				
Phe	Ala	Gln	Gly	Trp	Gly	Pro	Ile	Thr	Tyr	Thr	Glu	Pro	Asn	Ser	Ser
465					470					475					480
Asp	Gln	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Ala	Pro	Arg	Pro	Cys	Gly	Ile
				485					490					495	
Val	Pro	Ala	Ser	Gln	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr	Pro	Ser
			500					505					510		
Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Ser	Gly	Val	Pro	Thr	Tyr	Ser
		515					520					525			
Trp	Gly	Glu	Asn	Glu	Thr	Asp	Val	Met	Leu	Leu	Asn	Asn	Thr	Arg	Pro
	530					535					540				
Pro	Gln	Gly	Asn	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Thr	Gly	Phe
545					550					555					560
Thr	Lys	Thr	Cys	Gly	Gly	Pro	Pro	Cys	Asn	Ile	Gly	Gly	Val	Gly	Asn
				565					570					575	
Arg	Thr	Leu	Ile	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys	His	Pro	Glu	Ala
			580					585					590		
Thr	Tyr	Thr	Lys	Cys	Gly	Ser	Gly	Pro	Trp	Leu	Thr	Pro	Arg	Cys	Leu
		595					600					605			
Val	Asp	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys	Thr	Leu	Asn	Phe
	610					615					620				
Ser	Ile	Phe	Lys	Val	Arg	Met	Tyr	Val	Gly	Gly	Val	Glu	His	Arg	Leu
625					630					635					640
Asn	Ala	Ala	Cys	Asn	Trp										

2053293_1.TXT

Gly Ala Ala Tyr Ala Phe Tyr Gly Val Trp Pro Leu Leu Leu Leu Leu
 785 790 795 800
 Leu Ala Leu Pro Pro Arg Ala Tyr Ala Leu Asp Arg Glu Met Ala Ala
 805 810 815
 Ser Cys Gly Gly Ala Val Leu Val Gly Leu Val Phe Leu Thr Leu Ser
 820 825 830
 Pro Tyr Tyr Lys Val Phe Leu Thr Arg Leu Ile Trp Trp Leu Gln Tyr
 835 840 845
 Phe Ile Thr Arg Ala Glu Ala His Met Gln Val Trp Val Pro Pro Leu
 850 855 860
 Asn Val Arg Gly Gly Arg Asp Ala Ile Ile Leu Leu Thr Cys Ala Val
 865 870 875 880
 His Pro Glu Leu Ile Phe Asp Ile Thr Lys Leu Leu Leu Ala Ile Leu
 885 890 895
 Gly Pro Leu Met Val Leu Gln Ala Gly Ile Thr Arg Val Pro Tyr Phe
 900 905 910
 Val Arg Ala Gln Gly Leu Ile Arg Ala Cys Met Leu Val Arg Lys Val
 915 920 925
 Ala Gly Gly His Tyr Val Gln Met Ala Phe Met Lys Leu Gly Ala Leu
 930 935 940
 Thr Gly Thr Tyr Val Tyr Asn His Leu Thr Pro Leu Arg Asp Trp Ala
 945 950 955 960
 His Ala Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Val Phe
 965 970 975
 Ser Ala Met Glu Thr Lys Val Ile Thr Trp Gly Ala Asp Thr Ala Ala
 980 985 990
 Cys Gly Asp Ile Ile Leu Gly Leu Pro Val Ser Ala Arg Arg Gly Lys
 995 1000 1005
 Glu Ile Phe Leu Gly Pro Ala Asp Ser Leu Glu Gly Gln Gly Trp Arg
 1010 1015 1020
 Leu Leu Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg Gly Val Leu
 1025 1030 1035 1040
 Gly Cys Val Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu
 1045 1050 1055
 Gly Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr
 1060 1065 1070
 Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Ser Lys
 1075 1080 1085
 Thr Leu Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr Thr Asn Val
 1090 1095 1100
 Asp Leu Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala Arg Ser Met
 1105 1110 1115 1120
 Thr Pro Cys Ser Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His
 1125 1130 1135
 Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu
 1140 1145 1150
 Leu Ser Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro
 1155 1160 1165
 Leu Leu Cys Pro Ser Gly His Val Val Gly Val Phe Arg Ala Ala Val
 1170 1175 1180
 Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser
 1185 1190 1195 1200
 Met Glu Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro
 1205 1210 1215
 Pro Ala Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr
 1220 1225 1230
 Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly
 1235 1240 1245
 Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe
 1250 1255 1260
 Gly Ala Tyr Met Ser Lys Ala His Gly Ile Asp Pro Asn Ile Arg Thr
 1265 1270 1275 1280
 Gly Val Arg Thr Ile Thr Thr Gly Gly Ser Ile Thr Tyr Ser Thr Tyr

2053293_1.TXT

Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile
 Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly
 Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val
 Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro
 Asn Ile Glu Glu Ile Gly Leu Ser Asn Asn Gly Glu Ile Pro Phe Tyr
 Gly Lys Ala Ile Pro Ile Glu Ala Ile Lys Gly Gly Arg His Leu Ile
 Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Thr
 Gly Leu Gly Leu Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser
 Val Ile Pro Pro Ile Gly Asp Val Val Val Val Ala Thr Asp Ala Leu
 Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr
 Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile
 Glu Thr Thr Thr Val Pro Gln Asp Ala Val Ser Arg Ser Gln Arg Arg
 Gly Arg Thr Gly Arg Gly Arg Ser Gly Ile Tyr Arg Phe Val Thr Pro
 Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys
 Tyr Asp Ala Gly Cys Ala Trp His Glu Leu Thr Pro Ala Glu Thr Ser
 Val Arg Leu Arg Ala Tyr Leu Asn Thr Pro Gly Leu Pro Val Cys Gln
 Asp His Leu Glu Phe Trp Glu Ser Val Phe Thr Gly Leu Thr His Ile
 Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ala Gly Asp Asn Phe Pro
 Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro
 Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro
 Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln
 Asn Glu Val Ile Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala Cys
 Met Ser Ala Asp Leu Glu Val Val Thr Ser Thr Trp Val Leu Val Gly
 Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Thr Thr Gly Ser Val
 Val Ile Val Gly Arg Ile Ile Leu Ser Gly Lys Pro Ala Val Val Pro
 Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu Cys Ala
 Ser Gln Leu Pro Tyr Ile Glu Gln Gly Met Gln Leu Ala Glu Gln Phe
 Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala Thr Lys Gln Ala Glu
 Ala Ala Ala Pro Val Val Glu Ser Lys Trp Arg Ala Leu Glu Thr Phe
 Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala
 Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Ile Ala Ser Leu Met Ala

2053293_1.TXT

Phe Thr Ala Ser Ile Thr Ser Pro Leu Thr Thr Gln Asn Thr Leu Leu
 1795 1800 1805
 Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu Ala Pro Pro Ser
 1810 1815 1820
 Ala Ala Ser Ala Phe Val Gly Ala Gly Ile Ala Gly Ala Ala Val Gly
 1825 1830 1835 1840
 Ser Ile Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly
 1845 1850 1855
 Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Val Met Ser Gly Glu
 1860 1865 1870
 Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser
 1875 1880 1885
 Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg
 1890 1895 1900
 His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile
 1905 1910 1915 1920
 Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
 1925 1930 1935
 Glu Ser Asp Ala Ala Ala Arg Val Thr Gln Ile Leu Pro Ser Leu Thr
 1940 1945 1950
 Ile Thr Gln Leu Leu Lys Arg Leu His Gln Trp Ile Asn Glu Asp Cys
 1955 1960 1965
 Ser Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Val Trp Asp Trp Ile
 1970 1975 1980
 Cys Thr Val Leu Thr Asp Phe Lys Thr Trp Leu Gln Ser Lys Leu Leu
 1985 1990 1995 2000
 Pro Arg Leu Pro Gly Val Pro Phe Leu Ser Cys Gln Arg Gly Tyr Lys
 2005 2010 2015
 Gly Val Trp Arg Gly Asp Gly Ile Met Gln Thr Thr Cys Pro Cys Gly
 2020 2025 2030
 Ala Gln Ile Ala Gly His Val Lys Asn Gly Ser Met Arg Ile Val Gly
 2035 2040 2045
 Pro Arg Thr Cys Ser Asn Thr Trp His Gly Thr Phe Pro Ile Asn Ala
 2050 2055 2060
 Tyr Thr Thr Gly Pro Cys Thr Pro Ser Pro Ala Pro Asn Tyr Ser Arg
 2065 2070 2075 2080
 Ala Leu Trp Arg Val Ala Ala Glu Glu Tyr Val Glu Val Thr Arg Val
 2085 2090 2095
 Gly Asp Phe His Tyr Val Thr Gly Met Thr Thr Asp Asn Val Lys Cys
 2100 2105 2110
 Pro Cys Gln Val Pro Ala Pro Glu Phe Phe Thr Glu Val Asp Gly Val
 2115 2120 2125
 Arg Leu His Arg Tyr Ala Pro Ala Cys Arg Pro Leu Leu Arg Glu Asp
 2130 2135 2140
 Val Thr Phe Gln Val Gly Leu Asn Gln Tyr Leu Val Gly Ser Gln Leu
 2145 2150 2155 2160
 Pro Cys Glu Pro Glu Pro Asp Val Thr Val Leu Thr Ser Met Leu Thr
 2165 2170 2175
 Asp Pro Ser His Ile Thr Ala Glu Thr Ala Lys Arg Arg Leu Ala Arg
 2180 2185 2190
 Gly Ser Pro Pro Ser Leu Ala Ser Ser Ser Ala Ser Gln Leu Ser Ala
 2195 2200 2205
 Pro Ser Leu Lys Ala Thr Cys Thr Thr His His Asp Ser Pro Asp Ala
 2210 2215 2220
 Asp Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met Gly Gly Asn
 2225 2230 2235 2240
 Ile Thr Arg Val Glu Ser Glu Asn Lys Val Val Ile Leu Asp Ser Phe
 2245 2250 2255
 Glu Pro Leu His Ala Glu Gly Asp Glu Arg Glu Ile Ser Val Ala Ala
 2260 2265 2270
 Glu Ile Leu Arg Lys Ser Arg Lys Phe Pro Ser Ala Leu Pro Ile Trp
 2275 2280 2285
 Ala Arg Pro Asp Tyr Asn Pro Pro Leu Leu Glu Ser Trp Lys Asp Pro

2053293_1.TXT

2290 2295 2300
 Asp Tyr Val Pro Pro Val Val His Gly Cys Pro Leu Pro Pro Thr Lys
 2305 2310 2315 2320
 Ala Pro Pro Ile Pro Pro Arg Arg Lys Arg Thr Val Val Leu Thr
 2325 2330 2335
 Glu Ser Asn Val Ser Ser Ala Leu Ala Glu Leu Ala Thr Lys Thr Phe
 2340 2345 2350
 Gly Ser Ser Gly Ser Ser Ala Val Asp Ser Gly Thr Ala Thr Ala Leu
 2355 2360 2365
 Pro Asp Leu Ala Ser Asp Asp Gly Asp Lys Gly Ser Asp Val Glu Ser
 2370 2375 2380
 His Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly Asp Pro Asp Leu
 2385 2390 2400
 Ser Asp Gly Ser Trp Ser Thr Val Ser Glu Glu Ala Ser Glu Asp Val
 2405 2410 2415
 Val Cys Cys Ser Met Ser Tyr Thr Trp Thr Gly Ala Leu Ile Thr Pro
 2420 2425 2430
 Cys Ala Ala Glu Glu Ser Lys Leu Pro Ile Asn Pro Leu Ser Asn Ser
 2435 2440 2445
 Leu Leu Arg His His Asn Met Val Tyr Ala Thr Thr Ser Arg Ser Ala
 2450 2455 2460
 Ser Leu Arg Gln Lys Lys Val Thr Phe Asp Arg Leu Gln Val Leu Asp
 2465 2470 2475 2480
 Asp His Tyr Arg Asp Val Leu Lys Glu Met Lys Ala Lys Ala Ser Thr
 2485 2490 2495
 Val Lys Ala Lys Leu Leu Ser Ile Glu Glu Ala Cys Lys Leu Thr Pro
 2500 2505 2510
 Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val Arg
 2515 2520 2525
 Asn Leu Ser Ser Arg Ala Val Asn His Ile Arg Ser Val Trp Glu Asp
 2530 2535 2540
 Leu Leu Glu Asp Thr Glu Thr Pro Ile Asp Thr Thr Ile Met Ala Lys
 2545 2550 2555 2560
 Ser Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala
 2565 2570 2575
 Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met
 2580 2585 2590
 Ala Leu Tyr Asp Val Val Ser Thr Leu Pro Gln Ala Val Met Gly Ser
 2595 2600 2605
 Ser Tyr Gly Phe Gln Tyr Ser Pro Lys Gln Arg Val Glu Phe Leu Val
 2610 2615 2620
 Asn Thr Trp Lys Ser Lys Lys Cys Pro Met Gly Phe Ser Tyr Asp Thr
 2625 2630 2635 2640
 Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Val Glu Glu
 2645 2650 2655
 Ser Ile Tyr Gln Cys Cys Asp Leu Ala Pro Glu Ala Arg Gln Ala Ile
 2660 2665 2670
 Arg Ser Leu Thr Glu Arg Leu Tyr Ile Gly Gly Pro Leu Thr Asn Ser
 2675 2680 2685
 Lys Gly Gln Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu
 2690 2695 2700
 Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Thr Ala
 2705 2710 2715 2720
 Ala Cys Arg Ala Ala Lys Leu Gln Asp Cys Thr Met Leu Val Asn Gly
 2725 2730 2735
 Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Thr Gln Glu Asp Ala
 2740 2745 2750
 Ala Ala Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro
 2755 2760 2765
 Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser
 2770 2775 2780
 Cys Ser Ser Asn Val Ser Val Ala His Asp Ala Ser Gly Lys Arg Val
 2785 2790 2795 2800

2053293_1.TXT

Tyr Tyr Leu Thr Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp
 2805 2810 2815
 Glu Thr Ala Arg His Thr Pro Ile Asn Ser Trp Leu Gly Asn Ile Ile
 2820 2825 2830
 Met Tyr Ala Pro Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe
 2835 2840 2845
 Phe Ser Ile Leu Leu Ala Gln Glu Gln Leu Glu Lys Ala Leu Asp Cys
 2850 2855 2860
 Gln Ile Tyr Gly Ala Cys Tyr Ser Ile Glu Pro Leu Asp Leu Pro Gln
 2865 2870 2875 2880
 Ile Ile Glu Arg Leu His Gly Leu Ser Ala Phe Thr Leu His Ser Tyr
 2885 2890 2895
 Ser Pro Gly Glu Ile Asn Arg Val Ala Ser Cys Leu Arg Lys Leu Gly
 2900 2905 2910
 Val Pro Pro Leu Arg Thr Trp Arg His Arg Ala Arg Ser Val Arg Ala
 2915 2920 2925
 Lys Leu Leu Ser Gln Gly Gly Arg Ala Ala Thr Cys Gly Arg Tyr Leu
 2930 2935 2940
 Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile Pro Ala
 2945 2950 2955 2960
 Ala Ser Gln Leu Asp Leu Ser Gly Trp Phe Val Ala Gly Tyr Ser Gly
 2965 2970 2975
 Gly Asp Ile Tyr His Ser Leu Ser Arg Ala Arg Pro Arg Trp Phe Pro
 2980 2985 2990
 Leu Cys Leu Leu Leu Leu Ser Val Gly Val Gly Ile Tyr Leu Leu Pro
 2995 3000 3005
 Asn Arg
 3010